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# TRANSPORTATION PLANNING EFFECTIVENESS
## Twenty Case Studies

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Transportation Systems Center
Kendall Square
Cambridge MA 02142

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FINAL REPORT

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16. Abstract

This document consists of 20 site-specific case studies of urban area experience with the Technical Study Grant Program (Section 9 of the Urban Mass Transportation Act) of the Urban Mass Transportation Administration (UMTA). The objective of the case studies is to determine how the Technical Study Grant Program has contributed to transportation planning effectiveness by impacting local transportation policy and decision-making or guiding capital investments. The case studies employ a standardized format which focuses on transportation planning effectiveness in terms of development of professional planning capability, acquisition of capital equipment, introduction of new or improved service, and altered institutional climate. In addition, this document contains matrices which summarize and compare urban area transportation planning effectiveness, an explanation of the urban area selection procedure, and an appendix describing the data collection procedure.

Although these transportation planning effectiveness case studies are site-specific, the experiences reported and the methodology employed reveal substantive and procedural topics of general interest in the evaluation of transportation planning and of programs at any level to facilitate such planning.

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# PREFACE

This report was prepared under PPA UM-632, Transit Planning Studies, sponsored by the Office of Planning Assistance, UTP-20, Charles H. Graves, Director. It is part of a review of the Urban Mass Transportation Administration's Section 9 Technical Study Grant program. This report contains case studies describing site-specific experiences with the Technical Study Grant program.

The Transportation Systems Center appreciates the cooperation and assistance received from the UMTA UTP-20 staff, the UMTA Regional Offices, and from the many people contacted in the twenty case study sites. The material and interpretation presented in the case studies report TSC's understanding of the material provided and discussions held relative to the receipt and use of Technical Studies Grants.

David Rubin and K.H. Schaeffer (TSC), and Herbert Bogen (Raytheon Service Co.) all provided guidance for this report. Michael Fusco (RSC) wrote the case studies for Colorado Springs, San Diego, Syracuse, and Worcester. Nancy Cooney (RSC) wrote the case studies for Erie and Salt Lake City.

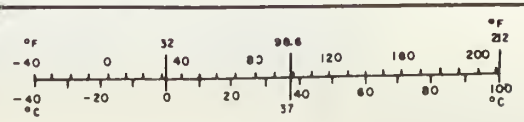
# METRIC CONVERSION FACTORS

## Approximate Conversions to Metric Measures

| Symbol | When You Know | Multiply by | To Find | Symbol |
|---|---|---|---|---|
| | | **LENGTH** | | |
| in | inches | 2.5 | centimeters | cm |
| ft | feet | 30 | centimeters | cm |
| yd | yards | 0.9 | meters | m |
| mi | miles | 1.6 | kilometers | km |
| | | **AREA** | | |
| $in^2$ | square inches | 6.5 | square centimeters | $cm^2$ |
| $ft^2$ | square feet | 0.09 | square meters | $m^2$ |
| $yd^2$ | square yards | 0.8 | square meters | $m^2$ |
| $mi^2$ | square miles | 2.6 | square kilometers | $km^2$ |
| | acres | 0.4 | hectares | ha |
| | | **MASS (weight)** | | |
| oz | ounces | 28 | grams | g |
| lb | pounds | 0.45 | kilograms | kg |
| | short tons (2000 lb) | 0.9 | tonnes | t |
| | | **VOLUME** | | |
| tsp | teaspoons | 5 | milliliters | ml |
| Tbsp | tablespoons | 15 | milliliters | ml |
| fl oz | fluid ounces | 30 | milliliters | ml |
| c | cups | 0.24 | liters | l |
| pt | pints | 0.47 | liters | l |
| qt | quarts | 0.95 | liters | l |
| gal | gallons | 3.8 | liters | l |
| $ft^3$ | cubic feet | 0.03 | cubic meters | $m^3$ |
| $yd^3$ | cubic yards | 0.76 | cubic meters | $m^3$ |
| | | **TEMPERATURE (exact)** | | |
| °F | Fahrenheit temperature | 5/9 (after subtracting 32) | Celsius temperature | °C |

## Approximate Conversions from Metric Measures

| Symbol | When You Know | Multiply by | To Find | Symbol |
|---|---|---|---|---|
| | | **LENGTH** | | |
| mm | millimeters | 0.04 | inches | in |
| cm | centimeters | 0.4 | inches | in |
| m | meters | 3.3 | feet | ft |
| m | meters | 1.1 | yards | yd |
| km | kilometers | 0.6 | miles | mi |
| | | **AREA** | | |
| $cm^2$ | square centimeters | 0.16 | square inches | $in^2$ |
| $m^2$ | square meters | 1.2 | square yards | $yd^2$ |
| $km^2$ | square kilometers | 0.4 | square miles | $mi^2$ |
| ha | hectares (10,000 $m^2$) | 2.5 | acres | |
| | | **MASS (weight)** | | |
| g | grams | 0.036 | ounces | oz |
| kg | kilograms | 2.2 | pounds | lb |
| t | tonnes (1000 kg) | 1.1 | short tons | |
| | | **VOLUME** | | |
| ml | milliliters | 0.03 | fluid ounces | fl oz |
| l | liters | 2.1 | pints | pt |
| l | liters | 1.06 | quarts | qt |
| l | liters | 0.26 | gallons | gal |
| $m^3$ | cubic meters | 36 | cubic feet | $ft^3$ |
| $m^3$ | cubic meters | 1.3 | cubic yards | $yd^3$ |
| | | **TEMPERATURE (exact)** | | |
| °C | Celsius temperature | 9/5 (then add 32) | Fahrenheit temperature | °F |



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# 1. OVERVIEW

The Transportation Systems Center was requested to conduct a review of the effectiveness of the transportation planning sponsored by the Urban Mass Transportation Administration's Technical Study Grant Program (Section 9 of the Urban Mass Transportation Act).

This report was designed to determine whether Technical Study Grants have impacted local transportation policy and decision-making or guided capital investments. The case study format describes the relationship between Technical Study Grants and the development of professional planning capabilities, acquisition of new capital equipment, introduction of new or improved services with existing facilities, and the local institutional climate. Case studies are reported on urban areas selected to represent all UMTA regions, a range of population sizes, residential densities, and demographic characteristics. Additionally, the case study results are summarized using matrices.

This review has focused on portraying the varied, site-specific effects of the Section 9 planning process in developing or fostering improved transportation services in urban areas. It is expected that the detail provided by the urban areas' experience with Section 9 Technical Study Planning Program will provide an understanding of the scope of this program as well as new directions for program evolution.

In summary, this TSC Study of the effectiveness of Technical Study Grant Program has had the following objectives:

To describe the varied nature of the transportation planning process.

To measure planning grants' cumulative impact on achievement of local transportation goals.

To ascertain the effectiveness of technical studies grants fostering improved transportation service.

To provide information necessary to guide UMTA decision-making.

# 2. METHODOLOGY

## 2.1 APPROACH

This review was designed to inventory the local impacts of transportation planning funded by the Urban Mass Transportation Administration Technical Study Grant Program. The review describes the professional transportation planning capability, acquisitions, and service improvements occurring in 20 urban areas as a result of the Technical Study Grant Program.

A case study approach was selected to describe the effectiveness of the planning grant program for two reasons. It is difficult to separate exogeneous influences from planning impacts, and in many situations it is inappropriate to statistically quantify planning impacts.

The case study format was designed to survey an area's transportation planning history. The case study provided a cumulative inventory of planning effects, given the difficulty of obtaining sufficient documentation on expenditures and specific results of each Technical Study Planning Grant.

A cumulative approach provides a site-specific anecdotal account of planning impacts indigenous to the program. It also highlights the idiosyncratic features of each urban area's transportation planning agencies, goals, and institutional climate that affected or were affected by the receipt of planning funds.

## 2.2 DATA COLLECTION

The data required to carry out this review were obtained from the UMTA Washington Headquarters, UMTA National Offices, and the urban areas. Data collection required personal and telephone conversations with local, state, and Federal officials as well as review of administrative and planning documents.

Chronologically, the initial step in data collection involved telephone contact with the regional officials and planners in the 10 UMTA Regional Offices. The purpose of this contact was to introduce the review to the UMTA staff, to reveal unique features of planning or institutional arrangements in the designated urban areas, and to gain an overview of each areas's planning history. UMTA regional officials were asked to identify appropriate local transportation planners and to provide applicable planning documents. Similarly, contact with UMTA, Office of Planning

Assistance, UTP-20, provided background and file information on each of the urban area's planning grant history.

Documentation of planning efforts was obtained to understand the direction and content of local planning usually prior to contact with a case study site. The annually required planning submissions and planning evaluations, which describe the status of transit planning in an area, were collected from the appropriate UMTA files. Other documents required by the Technical Study Grants Program that were collected included the Unified Work Program, the Prospectus (formerly known as the Operations Plan), and the Transit Development Program.

As available, other relevant documentation was collected and used to generate the case studies. These miscellaneous documents included site-specific special studies, long-range or multi-modal planning, annual reports, and transit operators' "Action Plans." The recent UMTA requirements of the Transportation Improvement Program and Transportation Systems Management Element were acquired as available for each urban area.

It should be noted that both procedures for and actual record keeping describing uses of Technical Study Grants do not always specify uses of these funds. Because local planning efforts are typically supported by several Federal funding sources, such as "PL" and "FAUS" funds, localities usually pool funding sources to support projects. Although the annual UWP enumerates specific efforts by funding source, actual achievement of these efforts versus expenditure of specific funding sources is difficult to determine when local impact of the effort is also examined. This review identifies specific activities supported by Technical Study Grants as far as possible.

The major focus of the data collection effort was a site visit to each of the 20 areas. These visits ranged from 2 to 4 days depending on the size of the area and the complexity of its planning process. Site visits included conversations with representatives of the MPO planning staff, Regional Transit Authority (RTA) and local officials. In the absence of an RTA, principal urban carriers, public and private, were visited. Site visits also included conversations with state, regional, and local planners and political representatives; the area's A-95 agency, when different from the MPO, was also contacted.

Review of documents and conversations with various planners and officials provided much information about an area's planning history and use of Technical Study Grant

funds. In order to integrate the material to be certain that all content areas relevent to this review were obtained, a data collection check-list scheme was devised. This check-list provided a comprehensive listing of data to be collected, as relevant, from each urbanized area. It is presented in the Appendix (see "Checklist for Local Interviews"). The check-list used in this review was strongly influenced by the format developed by Hammer, Siler and Green Associates in their report, "Planning Effectiveness and 701: An Evaluation," prepared for the Department of Housing and Urban Development, October 13, 1967.

## 2.3 CASE STUDY FORMAT

A uniform case study format was developed. Figure 1 presents an example of this format, specifying the types of data collected under each major heading of the case study.

The case study format includes a complete description of each urban area's socio-economic characteristics, trip characteristics, transit history, and transportation planning history. Background was also provided on the area's transportation goals, agencies, and the participation in Technical Study Grant Program to date. The major focus of the case study in detail and emphasis is in the effectiveness section. Effectiveness was defined to include professional planning capability, new capital acquisitions, service improvements, and institutional climate. Institutional climate is regarded as an indirect indicator of the planning grant effectiveness.

The following are brief descriptions of the four effectiveness areas:

### Development of Professional Planning Capabilities

Effectiveness was recorded if there was evidence of any addition or enhancement of the following:

Long-range planning capability
Short-range planning capability
Land use modeling
Demand model development
Demand forecasting
Intermodal planning for specific markets
Use of experts and consultants

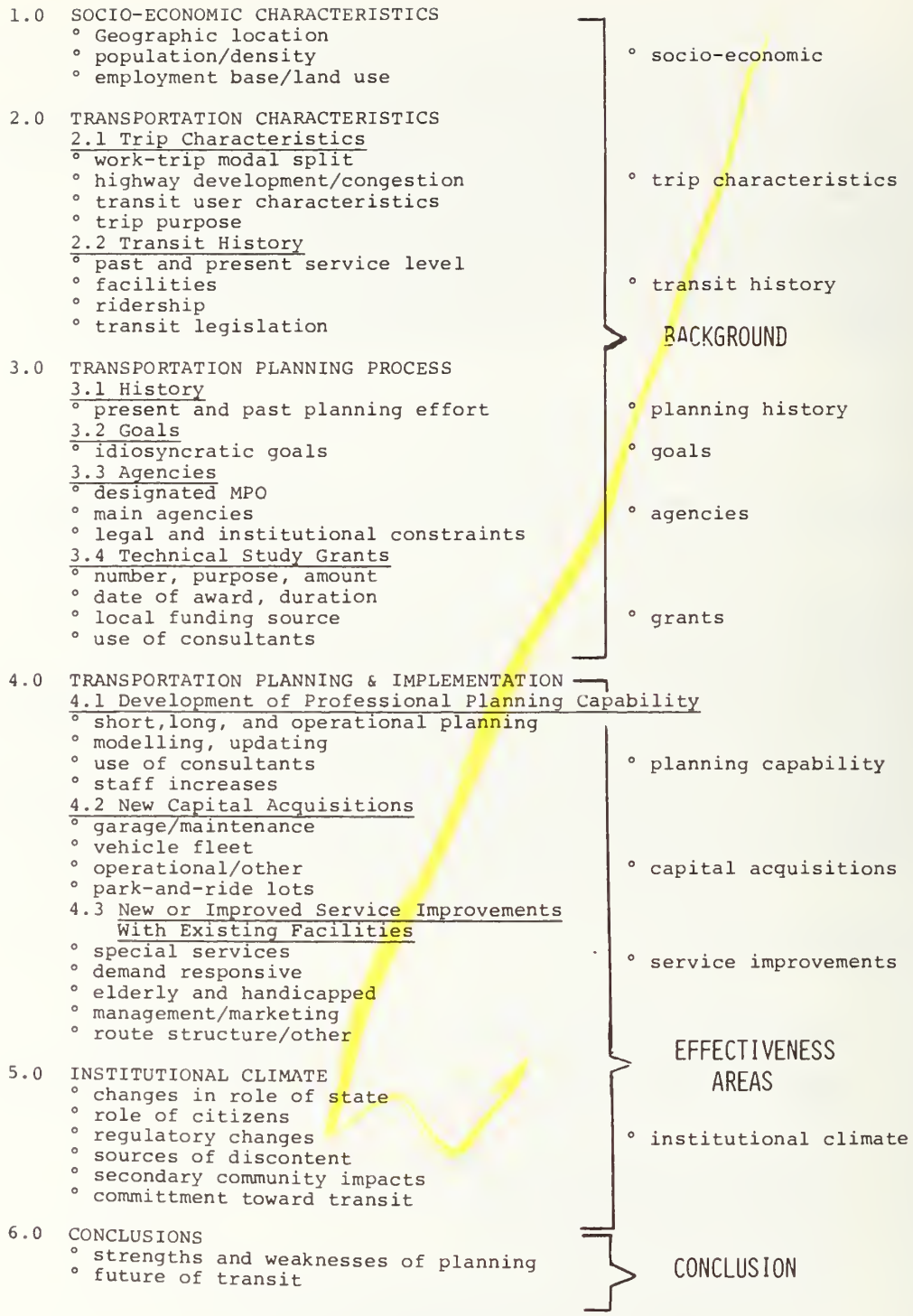


FIGURE 1. CASE STUDY FORMAT

Designation of a specific transportation or multi-purpose planning organization
Development of an updating or revising capability.

New Capital Acquisitions

Effectiveness in this area was recorded when planning resulted in the application for, or receipt of, capital assistance grants to acquire new transportation facilities including, but not limited to, the following:

Vehicles, garage, or maintenance facilities
Addition to or replacement of transit vehicles
Park-and-ride lots
Equipment which would improve operations.

New or Improved Services with Existing Facilities

Effectiveness is related to low capital-intensive efforts to provide more efficient and better transit service including:

Introduction of software programming management of vehicle deployment procedures
Division of operating and management policies
Applications for an UMTA Management Information Grant
New fare system
New deficit-financing mechanisms
Marketing efforts
Marketing to selected population segments, such as handicapped and elderly
Introduction of new services
Optimizing routes and schedules.

Institutional Climate

Effectiveness in this area is related to developing professional transportation planning organizations, which may be solely concerned with transportation planning or may address transportation within the context of other planning. This effectiveness area documents the coordinated nature of the transportation planning process and includes:

Development of transportation planning organizations
Changed roles of the state, region, or other agencies in planning, financing, or monitoring transportation
Regulatory changes
Public participation mechanisms

Secondary community impacts
Strategies for providing local shares of financing.

# 3. MATRICES

Although the case studies represent the primary product of the study, matrices were developed to summarize information on the direct and indirect impacts of Section 9 Planning Funds, and to allow comparison between areas. Three matrices were developed.

One matrix, located at the end of each case study, summarizes the case study format and findings and emphasizes specific areas of planning effectiveness. The other two matrices, presented in Section 6, offer a comparative summary of the 20 urban areas' planning effectiveness. One matrix details institutional effectiveness, and the other records effectiveness in the remaining three major areas. (Figures 2, 3, and 4 are samples of the matrix format which are presented completed in subsequent sections).

## 3.1 CASE STUDY MATRIX - SUMMARY: IMPACT OF TECHNICAL STUDIES PLANNING

In addition to inventorying planning grant impacts for each urbanized area, case study matrices were formulated to highlight planning chronology. The matrix in Figure 2 provides insight into the relationship between planning and implementation and locates planning responsibility. The case study matrix reveals whether planning grant funding has generated plans and, if so, whether that plan has been implemented or is staged. The matrix also suggests the role of the operator or consultants in effecting change in each effectiveness area. The latter issue has been of particular concern because of the assertion that some consultant planning is "unrealistic" and ends up "sitting on the shelf." Thus, a proper reading of this matrix not only answers the question of what proportion of plans are implemented, but it also facilitates comparison of implementation status by responsibility for planning.

## 3.2 SUMMARY MATRICES

Two summary matrices were formulated to provide comparisons of transportation planning outcomes between the 20 urban areas. These matrices also descriptively inventory planning activity funding by planning grants, indicated by X's.

Region

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9<br>Capital, Section 3 | | | |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | | | | | | | |
| Operational | | | | | | | |
| Long Range | | | | | | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | | | | | | | |
| Garage/Maintenance | | | | | | | |
| Operational/Other | | | | | | | |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | | | | | | | |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | | | | | | | |
| Other | | | | | | | |
| Route Coverage | | | | | | | |
| Route Scheduling | | | | | | | |



FIGURE 2. MATRIX FORMAT - SUMMARY OF TECHNICAL STUDIES PLANNING

### 3.2.1 Inventory of Impacted Areas of Transit Planning by Technical Study Grants

A key feature of this matrix, shown in Figure 3, is a supplemental heading titled, "Service Characteristics." This heading summarizes changes in four features of urban areas' transit systems likely to be affected by planning grant recommendations: ridership levels, vehicle miles, fleet size, and fare level. These features represent quantifiable, tangible impacts of the planning process. Percentage changes in these service characteristics are changes over the base year which is the year immediately preceding initial receipt of Technical Study Grant funds. Inferentially, increases or decreases in these characteristics represent effectiveness of the Technical Study Grant planning effort.

### 3.2.2 Institutional Characteristics and Issues

The second summary matrix, shown in Figure 4, addresses institutional change. It was intended to determine to what extent the Technical Study planning process supported or contributed to the development of an institutional climate encouraging a comprehensive, coordinated, and continuing "3-C" transportation planning process. For example, a major concern has been the coordinated aspect of the "3-C" process or, specifically, to what degree coordination takes place within an area at different levels of government and between agencies (private and public) concerned with transportation planning and implementation. This institutional matrix summarizes, by urbanized area, institutional coordination as affected by the Technical Study Grant Program.

To describe salient institutional characteristics, this summary institutional matrix was formulated to inventory the following topics:

Does the area have a Regional Transit Authority?

What is the type of agency designated as the MPO?

What type of planning is done by the MPO?

What is the MPO's decision-making authority?

The inventory of characteristics provided by this matrix may be used as a benchmark against which to compare the types of institutional issues associated with each area's planning process.

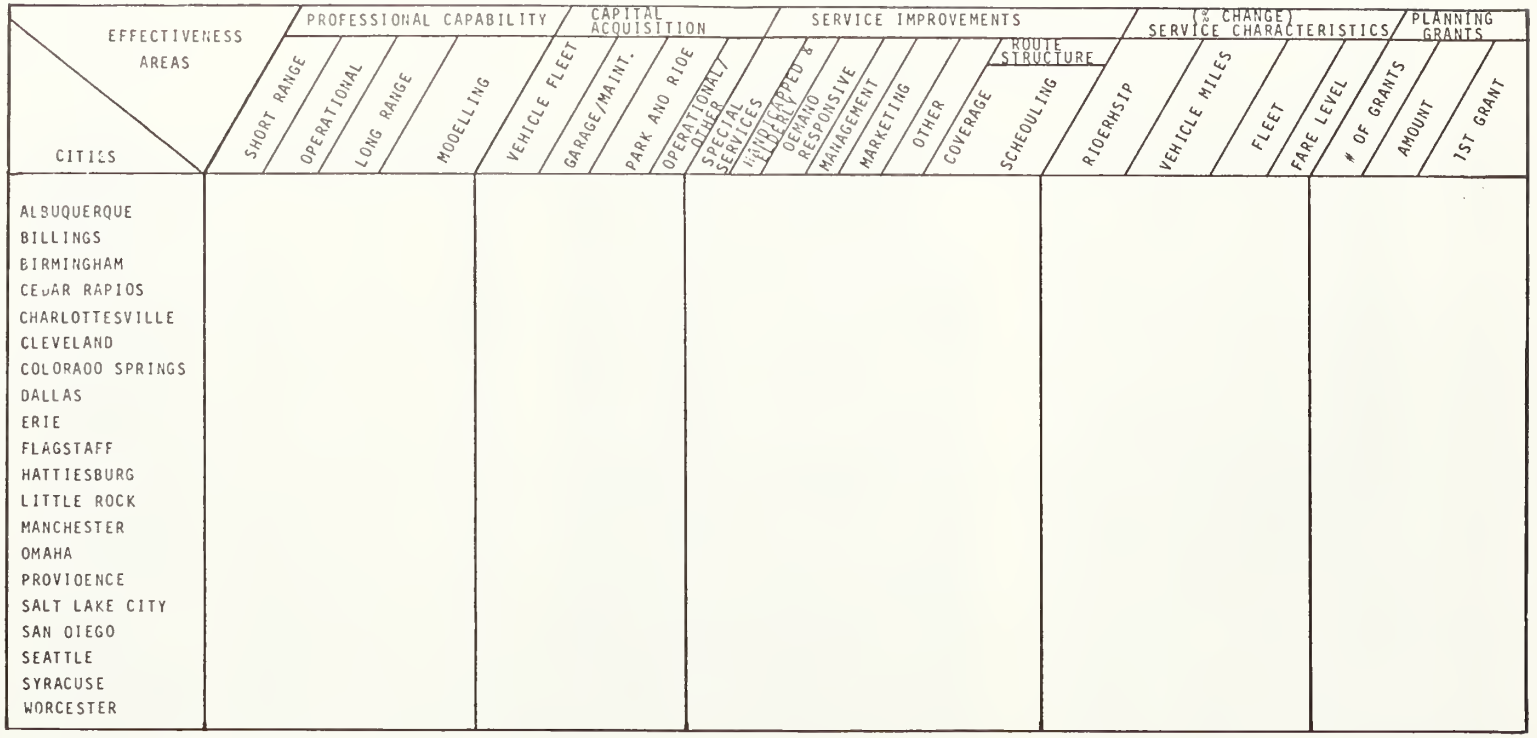


FIGURE 3. MATRIX FORMAT - INVENTORY OF IMPACTED AREAS OF TRANSIT PLANNING BY TECHNICAL STUDY GRANTS

| | CHARACTERISTICS | | | | ISSUES | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OPERATIONAL | | | JURISDICTIONAL | | | | |
| Cities | MPO | RTA | MPO Planning | MPO Decision Making | A | B | C | Citizen Part. | Geog. Area | Proper MPO | Fair Share | State's Role |
| ALBUQUERQUE | | | | | | | | | | | | |
| BILLINGS | | | | | | | | | | | | |
| BIRMINGHAM | | | | | | | | | | | | |
| CEDAR RAPIDS | | | | | | | | | | | | |
| CHARLOTTESVILLE | | | | | | | | | | | | |
| CLEVELAND | | | | | | | | | | | | |
| COLORADO SPRINGS | | | | | | | | | | | | |
| DALLAS | | | | | | | | | | | | |
| ERIE | | | | | | | | | | | | |
| FLAGSTAFF | | | | | | | | | | | | |
| HATTIESBURG | | | | | | | | | | | | |
| LITTLE ROCK | | | | | | | | | | | | |
| MANCHESTER | | | | | | | | | | | | |
| OMAHA | | | | | | | | | | | | |
| PROVIDENCE | | | | | | | | | | | | |
| SALT LAKE CITY | | | | | | | | | | | | |
| SAN DIEGO | | | | | | | | | | | | |
| SEATTLE | | | | | | | | | | | | |
| SYRACUSE | | | | | | | | | | | | |
| WORCESTER | | | | | | | | | | | | |

KEY:

L = Long Range
S = Short Range
O = Operational
SR = Sub Regional

A = Operational vs. Policy Planning
B = Public vs. Private Operators
C = "Pass Through" Funds

FIGURE 4. MATRIX FORMAT - INSTITUTIONAL CHARACTERISTICS AND ISSUES

The Regional Transit Authority (RTA) and the designated Metropolitan Planning Organization (MPO) are the pivotal institutions affecting coordination of transit planning and implementation. The existence or absence of an RTA importantly determines the cooperation between public and private transit operators and, potentially, the degree of service integration. Similarly, the MPO has an important role as the recipient grant agency and as "the forum of cooperative decision-making by principally elected local officials." Designation of the MPO is of prime importance because of the continuing controversy in many areas regarding the proper agency to assume this role.

# 4. SITE SELECTION

## 4.1 BACKGROUND

In 1966 Congress authorized a program of Technical Study Grants to assist state and local agencies in conducting studies to improve mass transportation service in urban areas. To date, UMTA has received more than 650 applications and has awarded approximately 550 Technical Study Grants to authorized recipients. Although only 9 grants were awarded in 1967, the first year of the program's operation, program participation has steadily increased to an estimated level of 350 grants in FY76. Participants have included each of the 50 states, each of the 278 urban areas of over 50,000 population, and numerous areas with less than 50,000 population. Within these territorial units, grants have usually been awarded to local Metropolitan Planning Organizations, but also have gone to State Departments of Transportation, public boards, commissions, or corporations established under state law.

In order to review the Technical Study Grants and their local impacts, the Transportation Systems Center selected 20 urban areas which have participated in the program.

## 4.2 SITE SELECTION APPROACH

UMTA Management Information Systems Handbook (MIH)* listed 321 areas as having ever made application for, or received, a Technical Study Grant, as of March 31, 1975. They were located throughout all 10 UMTA Regions, and include the 50 States and 2 U.S. territorities (Guam and Puerto Rico). The areas also varied in terms of the number and dollar amount of grants received.

A selection procedure was designed to select 20 urban areas representative of the range of Technical Study Grant recipients. Information on urban area characteristics and grant activity was obtained from the U.S. Department of Commerce, Bureau of the Census, County and City Data Book, 1972, and UMTA's Management Information Handbook. Of specific interest were population, density, median family income, geographic region, and the category.

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*Urban Mass Transportation Administration, Management Information Handbook, Office of Administration, Management Information Systems Division, March 31, 1975

amount, and number of UMTA grants received, including Capital Assistance grants. To monitor UMTA's short term objective of improving mobility of non-drivers and improving the safety and mobility of elderly and handicapped, data were also coded on the proportion of carless households, elderly, and usage of public transit in the urban areas. The latter information was used as a resource in the final site selection stage.

## 4.3 SELECTION CRITERIA

Selection criteria were developed to represent variation in program participation (number and amount of grants), national coverage (UMTA regions, population size), and the need for transportation improvement according to transit dependency. It was intended that the final group of 20 areas would include the following characteristics:

- at least one Technical Study Grant received by each area examined
- at least one case study in each UMTA region
- at least one case study of a rapid rail city
- case studies of a variety of areas by population size
- at least one case study in both very high and very low population density areas, with respect to the national urbanized area mean
- at least one case study in areas with very high and very low proportions of elderly residents, with respect to the national urbanized area mean
- at least one case study with a very high and with a very low median family income, with respect to the national urbanized area mean
- at least one case study in areas with both very high and very low transit dependency, with respect to the national urbanized area mean.

## 4.4 SELECTION PROCESS

Selecting the actual case study sites required a multi-stage sorting procedure. The sorting procedure was designed to select areas representing a cross-section of Technical Study Grant recipients, including smaller cities.

The procedure was not intended to represent statistically areas in direct proportion to their population size or receipt of program funding.

The sorting process stratified areas by geographic region, population size, and degree of transit-dependent population. Using statistical constraints (described below), areas were placed into a three-variable typology from which the final selection was made. The staged selection process is shown graphically in Figure 5 and can be summarized as follows:

(1) Total program participants (321 areas) were divided into geographic areas representing the 10 UMTA regions (Figure 3). This produced 10 subgroups with the areas within each group ranging from 104 areas in Region 5 to 25 in Region 8.

(2) Within each UMTA region, the areas were subdivided into five population size classes. The sizes included 50,000, 50,000-100,000, 100,000-250,000, 250,000-500,000, larger than 500,000.

(3) Within each population size, socio-economic/grant characteristics were rank-ordered and statistical means and standard deviations were computed for each variable ranking.

(4) Having separated areas receiving only one grant (approximately 20 percent of the program participants) from those receiving more than one grant, areas were sorted by socio-economic and demographic patterns to ensure inclusion of a cross-section of community types. Sorting produced listings of areas as "high," "mean," and "low." "High" identified those areas with values greater than or equal to 1 standard deviation to the right of the mean. "Low" identified those areas with values less than or equal to 1 standard deviation to the left of the mean. "Mean" described values less than 1 standard deviation to the right of the mean, but greater than 1 standard deviation to the left of the mean, or in other words, the middle range of values.

Socio-economic and demographic patterns were combined to generate areas as "high," "mean," or "low" in terms of their structural affinity for transit service. For example, "high" income was combined with "low" density, at least one car per household, and a "low" proportion of elderly to represent relatively dispersed sites where it is

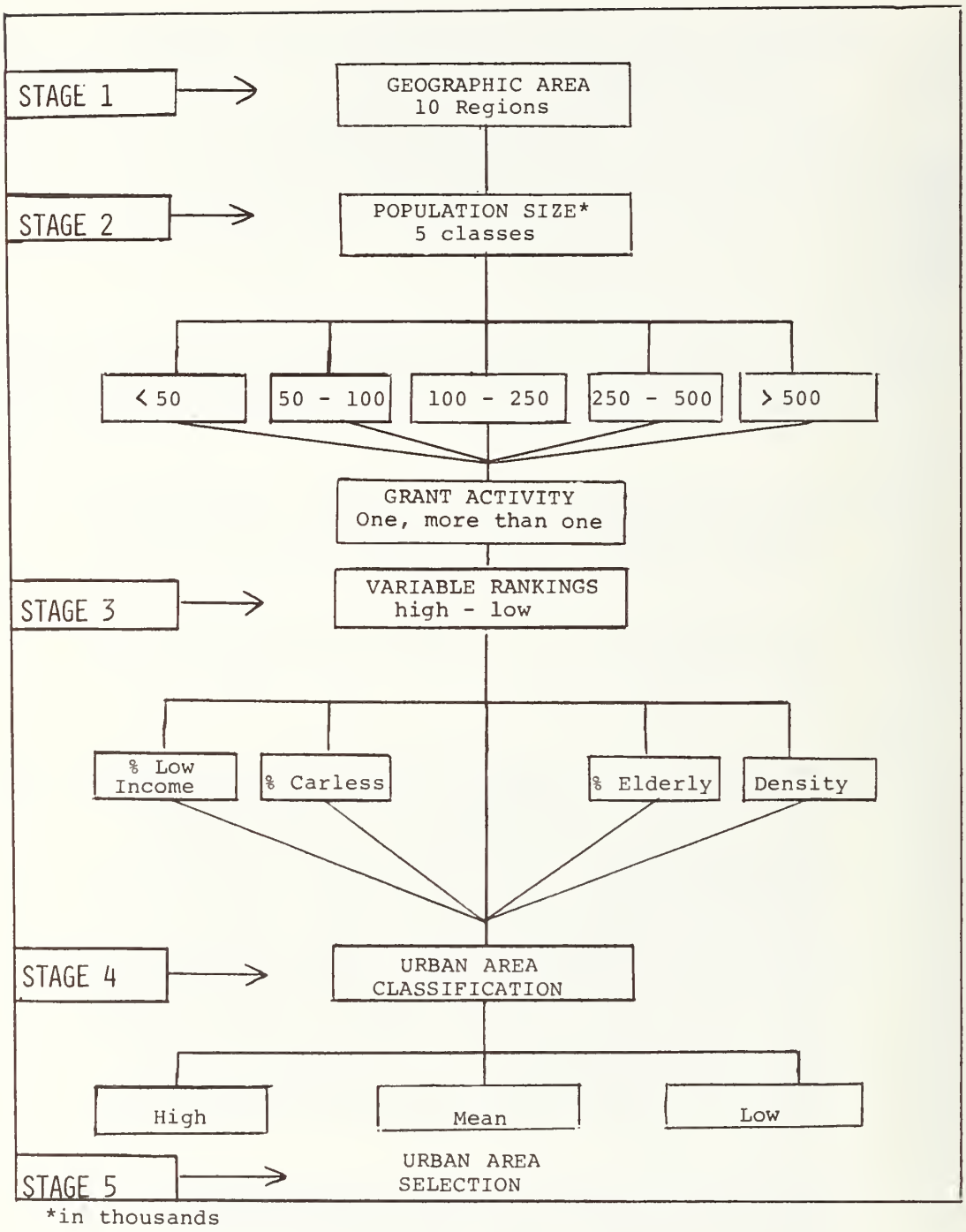


FIGURE 5. URBAN AREA SELECTION SEQUENCE

more difficult to provide conventional transit service.

(5) Designation of 20 urban areas for study was based on the pool of 30 candidates generated by Step 4. This selection also satisfied the study's selection criteria. The 20 areas studied and the 30 candidate areas are shown in Table 1.

To convey the national representativeness of the 20 sites selected, mean values for the 5 variables used in the final stages of the selection process are compared with the values for all recipients of Technical Study Grants and for all urbanized areas nationally.

Mean Values for Selection Variables

| | % Carless | Income | Density | % 65+ | # Grants |
|---|---|---|---|---|---|
| All Urbanized Areas | 20 | N/A | 3,376 | 9.0 | N/A |
| 321 Sites, Recipients of Technical Study Grants | 20 | $9,240 | 3,000-5,000 | 10.4 | 2.5 |
| 20 Selected Sites | 19 | 9,339 | 4,254 | 10.5 | 3.0 |

The means of the 5 variables used in the final stages of selection process vary slightly between the 20 chosen areas, all program recipients, and all urbanized areas.

TABLE 1. LIST OF CANDIDATE URBAN AREAS

| UMTA REGION | URBAN AREA | UMTA REGION | URBAN AREA |
|---|---|---|---|
| 1 | MANCHESTER NH<br>PROVIDENCE RI<br>WORCESTER MA | 6 | ALBUQUERQUE NM<br>DALLAS-FT. WORTH TX<br>LITTLE ROCK AR |
| 2 | Binghampton NY<br>Camden NJ<br>SYRACUSE NY | 7 | CEDAR RAPIDS IA<br>Jefferson City MO<br>OMAHA NE |
| 3 | Charleston WV<br>CHARLOTTESVILLE VA<br>ERIE PA | 8 | BILLINGS MT<br>COLORADO SPRINGS CO<br>SALT LAKE CITY UT |
| 4 | BIRMINGHAM AL<br>Covington KY<br>HATTIESBURG MS | 9 | FLAGSTAFF AZ<br>Las Vegas NV<br>SAN DIEGO CA |
| 5 | CLEVELAND OH<br>Grand Rapids MI<br>Mankato MN | 10 | Anchorage AK<br>Medford OR<br>SEATTLE WA |

Selected areas in CAPITAL LETTERS.

# 5. CASE STUDIES AND MATRICES

This section contains the case studies developed for the sites selected, presented alphabetically.

Each case study is followed by a case study matrix which summarizes the impact of planning funded by the Technical Study Program.

## 5.1 ALBUQUERQUE, NEW MEXICO

### Demographic/Socio-Economic Background

The City of Albuquerque, with a population of 303,100, is located in Bernalillo County, New Mexico. Albuquerque is the county seat and the largest city in New Mexico. The City of Albuquerque and Bernalillo County are located in the center of New Mexico and together represent the state's largest metropolitan area, which is commonly known as the Greater Albuquerque Area.

The Albuquerque-Bernalillo County area contains one-third of New Mexico's population. The present population of the county is 369,900. Between 1960 and 1973 Bernalillo's population increased from 262,299 to 351,800, a 31.2 percent increase. In the same period, the City of Albuquerque's population increased from 242,216 to approximately 297,000, which represents a 22.6 percent increase. The average annual growth rates for Bernalillo County and the City of Albuquerque are 2.6 percent and 1.7 percent respectively.

As of 1975, the population density for the City of Albuquerque is 3,300 persons per square mile; for the Greater Albuquerque area, it is 1,200 persons per square mile.

According to the 1970 census 16,627 families, or 21.8 percent of all families in the Greater Albuquerque area had incomes below $5,000 in 1969. The proportions of elderly, disabled, and handicapped are not particularly large: 6.1 percent (19,005) of the Greater Albuquerque area's population is 64 years of age or older, and 11.8 percent of the area's population is disabled or handicapped.

Economic activity in the Greater Albuquerque area is centered around government employment and employment resulting from defense-related contracts. This dependence on government employment, which in Albuquerque accounts for nearly 21 percent of total employment, has given the area a narrow economic base and made the economy vulnerable to fluctuations in government spending. In 1973 about 4,000 workers were employed by new industries, including Singer Business Machines, GTE Lenkurt, Levi Strauss, Elastimold Division of Amerace Esna, and Amity Leather Company. Other important sources of economic activity are trades and services. Development of many local scenic and historic attractions by the city and county governments has encouraged tourism as another basic economic activity. The 1975 estimated unemployment rate was 7.27 percent.

The major employers are located in 20 industrial parks generally dispersed throughout the Greater Albuquerque area. Downtown Albuquerque, which is the central business district accounts for 14,000 jobs. Since 1970, two major regional

shopping centers, Coronado and Winrock, have been constructed and have become major employment and retail trade centers for the Greater Albuquerque area.

## Transportation Characteristics

### Trip Characteristics

Most people move around Albuquerque and neighboring counties by private car. The automobile is used in approximately 98 percent of trips. Since 1971, the City of Albuquerque has averaged a 10 percent annual increase in vehicle miles traveled.

Parking problems are not critical in the downtown area and access to most parts of the city is relatively convenient by automobile. During weekends and holiday seasons, a major traffic congestion problem is created by automobile traffic around the two regional shopping centers, located several miles from the CBD.

The transit system operates 32 regular routes, 2 special peak routes, and 2 special university routes. Total route mileage is 317 miles, while total annual miles of operation number 2,280,980. Area coverage is fairly evenly distributed, but some city areas that have experienced rapid growth in recent years have little services. The transit system operates 297 miles of local service and 20 miles of express service.

Thirteen routes, covering approximately 1,082,000 miles annually, provide services to areas containing low-income minority persons. These routes represent 47 percent of the total annual mileage of the system.

Senior citizens constitute about 53 percent of system-wide transit riders.

### Transit History

Mass transit in Albuquerque accounts for only 1 percent of the trips in Albuquerque, providing service for 4 million people annually. Transit services began in Albuquerque in 1928 when the City issued a franchise permit to a private bus company from Casper, Wyoming. The Albuquerque Bus Company, as it was known under private ownership, operated from 1928-1965 with one change in ownership in 1945. In 1963, the bus company notified the City that it wanted to terminate the franchise permit because of unfavorable financial conditions caused by the decline of bus partonage. In 1965, the City acquired the rights and assets of the Albuquerque Bus Company and Suburban Bus Lines for $1,194,000 and consolidated operations. The operations of these two franchises were integrated into the Albuquerque Transit System, which became the municipal transit

department. The Albuquerque Transit System services the City of Albuquerque and Bernalillo County.

At the beginning of public ownership, the transit manager was the key administrator of the Albuquerque Transit System and was directly responsible to the city manager. In 1974, the manager-commission form of government was changed to mayor-council. The City Council created a new department of transportation planning in 1975, which is responsible for transit, highways, and streets. As of 1975, operational control of the transit system has been exercised by the transit supervisor reporting to the city's director of transportation planning.

The decline from 16,250 daily revenue passengers in 1962 to 14,260 daily revenue passengers under municipal ownership in 1976 has left a ridership that, while diminished, is highly dependent upon public transit. Most transit users are captive riders -- persons having no other means of transportation. As might be expected, the captive riders tend to be the young, the elderly, and the poor. Under city ownership, however, the decline in patronage has been halted at the level of approximately four million passengers annually for the past 4 years.

The decline in ridership was caused by the following: frequent equipment breakdowns and undependable service, old and noisy buses, frequent and unannounced rescheduling of bus routes, and limited passenger amenities. In a period spanning February to May 1974, an average of 88 monthly road calls were recorded. With the system operating about 210,000 miles per month, there was one road call per 2,400 miles of service. A detrimental effect of the excessive number of road calls is to jeopardize dependability and attractiveness of mass transit.

The most conspicuous need of mass transit in Albuquerque is for new vehicles. The existing transit fleet consists of 67 coaches with passenger capacities ranging from 19 to 45. The median age of the fleet is 14.8 years. Of the newer vehicles, 9 are recently purchased 19- to 24-passenger capacity Flexettes and 18 are 35-passenger GMC TDH 3501's.

The annual operating deficit of the transit system increased from $400,000 in 1963 to $1,240,000 in 1975. During this period, driver's wages increased 67 percent and revenue equipment expenses increased 63 percent, while passenger and charter revenues decreased at an annual average of 5 percent. The City of Albuquerque has subsidized the transit system from its general fund and other city funds since 1966. Since 1965 Bernalillo County has contributed to the City of Albuquerque for the transit services provided. In fiscal 1974, the County contributed $200,000.

New Mexico State law restricts municipalities to providing transit services within their boundaries only. From 1965 to 1975 the transit system had been providing services in the county without State authorization. Research conducted under the first technical study grant pointed out the violation. A subsequent agreement between the county and the city calls for the county reimbursing the city for half of the annual deficit incurred by the transit service offered in the county. In 1976, the county paid the city $90,000 for fiscal year 74-75 and the identical amount for fiscal year 75-76.

## Transportation Planning Process

### History

The first comprehensive transportation study of Albuquerque was undertaken between 1949 and 1950, to develop long-range highway needs and program study. It was financed by federal, state, and local funds. During the late 1950's transportation research was continued by the City in cooperation with the National Committee on Urban Transportation, which selected Albuquerque as one of several pilot cities for testing and evaluation of highway transportation planning methods.

In 1962, recognizing the unprecedented growth that had occurred in the Albuquerque area since the 1949 survey and the need for new data with which plans and improvements could be developed, the City and State commissioned a conprehensive transportation study of the Albuquerque metropolitan area. The New Mexico State Highway Commssion contracted the firm of Wilbur Smith and Associates to conduct the study. The long-range transportation plan was adopted in 1965 and now forms the basis for the continuing comprehensive and cooperative urban transportation planning process.

This study and the resultant long-range transportation plan were made possible by the 1962 Federal Highway Act, and pursuant to this study, a continuing, comprehensive and cooperative Urban Transportation Program (UTP) for the Albuquerque urbanized area was started in 1966 in accordance with Section 134 of the Federal Highway Act. The program was supported by the City of Albuquerque, Bernalillo County, and the New Mexico State Highway Department in September, 1966.

A limited Transit Development Program for the area was included in the 1962-64 Albuquerque transportation study. Because of a lack of local political support, only limited efforts were made to implement the recommended transit route.

The following factors contributed to the lack of transit planning between 1964 and 1972:

1. A booming economy led to increased automobile purchases.
2. The highway system was expanded because of the availability of federal funding.
3. The State Highway Agency emphasized highway planning rather than transit planning.
4. The former city manager discouraged improving the bus system and used limited local matching funds for urban renewal in the CBD.

In December 1972 the first Preliminary Study of a Transit Development Program for the City of Albuquerque was prepared by the City's Transportation and Planning Departments in cooperation with MRGCOG staff. The purpose of the planning study was to illustrate to the commission and the City Manager the need to conduct a comprehensive transit system study to determine the best method of upgrading the level of service and reducing the operating deficit. The study identified the Section 9 Technical Studies Grants Program as a means of accomplishing the objective.

The study included preliminary planning, capital improvements, and operational recommendations for immediate and active transit improvement efforts, and provided one of the bases for the development of both the short and long-range elements of the intermodal UTP process. These recommendations provided a basis for the transit development element included in the 1973-74 Unified Work Program (UWP), which Albuquerque had to prepare to meet DOT requirements for comprehensive, intermodal planning. This first UWP for Albuquerque was one of the conditions of certification of urban areas set forth by DOT.

In the spring of 1973 the City Manager requested that the MRGCOG submit applications to UMTA for a capital grant to purchase six buses and for funding under the Technical Studies Grants program to conduct a short-range transit planning study. The study was to include transit-related surveys, evaluations of existing transit system conditions, transit improvements, public information systems, and so forth.

Following a planning review by the UMTA regional office in January 1974, the first Technical Study Grant was approved in April 1974. Also, conditional approval was given for the capital grant to purchase six buses. For the City of Albuquerque to remain eligible for UMTA capital grants beyond June 30, 1975, it had to update its 1972 Transit Development Program study to be consistent with UMTA guidelines and keep current its adopted 1995 development patterns plan.

In March 1975, the city, with the assistance of an UMTA Capital Grant, ordered 52 new buses, scheduled for delivery in June 1976.

Since 1972, the transit planning process has become more of a cooperative effort between the COG and the City government, with less direct involvement from the highway-oriented State Highway Agency.

## Goals

Prior to the Transportation Development Program neither the COG nor the City of Albuquerque had developed a statement of goals for transit planning. The specific goals of the 5-year Comprehensive Transit Development Program for the Greater Albuquerque area are to provide capital intensive and non-capital intensive improvements in public transportation services; meet the needs of low-income, elderly, and minority groups for public transportation; provide management and operational improvements; and take advantage of secondary source data available from the Albuquerque Urban Regional Information System. The proposed TDP is to commence in fiscal year 1975-76 and continue through fiscal year 1980-81. The Municipal Department of Transportation Planning is responsible for implementation with transit planning assistance provided by the MRGCOG.

## Agencies

The Middle Rio Grande Council of Governments (MRGCOG) of New Mexico is the area wide comprehensive planning agency responsible for transportation planning for the central New Mexico counties of Bernalillo, Sandoval, Torrance, and Valencia.

The MRGCOG has been officially designated by DOT to coordinate, oversee, and administer federal funds for comprehensive transportation planning for the four-county area (Metropolitan Planning Organization).

The MRGCOG is designated a multi-modal, multi-jurisdictional transportation planning agency under the Federal Highway Act of 1973, the Urban Mass Transportation Act of 1973, as amended, and the Airport and Airway Development Act of 1970. It has been named the MPO by the Governor of the State of New Mexico.

Other current transportation-related activities of the MRGCOG include: administration and management of National Highway Safety Administration programs, management and fiscal agent for an airport master planning study funded in part by the Federal Aviation Administration, and principal investigator and coordinating agency for two DOT-FHWA research contracts.

MRGCOG also is designated a regional planning agency by HUD, and by the Economic Development Administration as an Economic Development District.

The metropolitan regional clearinghouse functions, as specified by OMB Circular A-95 Revised, are carried out by the MRGCOG.

The MGRCOG was established under State statutes as a regional planning commission. It is an association of local governments within New Mexico State Planning and Development District No. 3. Participating local governments are represented through a Board of Directors made up of elected and appointed officials selected by the member government. These representatives in turn select an Executive Board from the Board of Directors to serve as the primary policy-making and coordinating body of the MRGCOG.

In 1962, the Board of Directors created the Urban Transportation Planning Board, a separate policy board, to handle all transportation planning activities. The board has a working committee called the Transportation Coordinating Committee (TCC), which is responsible for recommending policiies, providing technical advice, and coordinating transportation projects, including transit.

MRGCOG prepares and coordinates transportation funding applications for all of its members, applying for UMTA Section 9 Technical Studies Grants and Section 3 Capital Grants. It solicits proposals from members and incorporates their recommendations within the annual UWP.

MRGCOG performs short and long-range transit planning and coordinates it with the director of the City Department of Transportation, who in turn coordinates it with the transit supervisor of the Albuquerque Transit System.

Also MRGCOG coordinates its transportation planning with the Albuquerque City Planning Department and the New Mexico State Highway Department. Both agencies have little input in transit planning.

Citizen input is organized through special advisory groups to committees of the various policy boards. A citizen's advisory committee participated in the formulation of recommendations for the technical study grants. Citizens were appointed to the advisory committee by City Councilmen.

The reports of the Technical Studies Grants prepared by MRGCOG and City staff helped persuade elected officials to support new local legislation to assist the transit system and the redevelopment of the CBD. Summaries of the technical studies reports appeared in the MRGCOG monthly newsletter and were publicized by the local and University newspapers.

The MRGCOG is the most sophisticated planning vehicle in the State. Because of its capabilities and resources, the local governments draw upon its services heavily; the planning agencies of local governments recognize that the only place to get planning resources is the MRGCOG. Until the Albuquerque Department of Transportation's planning capabilities are strengthened, it will use the MRGCOG resources heavily.

### Technical Studies Grants

The MRGCOG was the primary grant contractor with UMTA for three Technical Studies Grants. The grants were to develop a Transit Development Program for the Albuquerque urbanized area. The work provided a basis to integrate transit planning and development with major street and air facilities planning within the framework of comprehensive planning programs for the area. (See Table 2.)

The initial technical study was designed as the transit element of the MRGCOG's Urban Transportation Planning Unified Work Program for fiscal year 1973-74. The UWP was developed by the staff of the MRGCOG, adopted by the MRGCOG's Policy Board for Urban Transportation Planning, and approved by DOT's Regional Intermodal Planning Group.

The first Technical Study Grant was wholly subcontracted to Simpson and Curtin, transportation engineers from Philadelphia. The primary purpose of the initial transit technical study was to develop a short-range Transit Development Program (TDP). At the same time it sought to strengthen the management and planning capabilities of local staff through their direct participation in order to effectively build upon and maintain the work accomplished during the study. The secondary purpose of the study was to provide a basis for integrating long-range transit systems planning with other long-range transportation systems planning being conducted as part of the continuous multi-modal, multi-jurisdictional planning process for the Albuquerque urbanized area.

The study proposal included transit-related travel surveys (including assessment of unique needs of the poor and elderly), evaluation of existing conditions, school bus transportation improvements, a transit alternative, public information systems, recommendations, and justification of improvements. The project included a schedule of priorities, cost estimates, revenue projections, and a financing plan.

The second and third Technical Studies Grants aided development of in-house planning capability. The grants helped to fund the transit portion of the continuing transportation planning process in the Albuquerque area for fiscal year 1975. The objectives of the program were:

surveillance of socio-economic land use and transportation system data; enhancement of the analytical capacity of the transportation planning process; reappraisal of short, intermediate, and long-range transportation plans; and the establishment of a continuing program for energy conservation.

Recommendations of the Albuquerque Technical Studies Grants are incorporated in the annual Transit Improvement Plan for funding by the UMTA Capital Grant Program. The consultant's report was accepted and adopted by the City of Albuquerque and MRGCOG.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Neither the MRGCOG nor the City Department of Transportation and Planning had transit planners on their staffs prior to the first Technical Study Grant. The 1972 Preliminary Study for a Transit Development Program, prepared by the City and MRGCOG, identified the need to hire two transit planners to improve the transit system and the City's in-house transit planning capabilities.

In 1974 and again in 1975, the MRGCOG and the City Department of Transportation and Planning each added one transit planner to their staffs. The influence and resources of the first Technical Study Grant can be considered as factors for hiring.

Since the first Technical Study Grant, which provided funds for an outside consultant, the MRGCOG and City Department of Transportation have gained much expertise in transportation/mass transit planning. MRGCOG and City officials anticipate less use of consultants and more emphasis on building up in-house capabilities. The consultant played a major role in educating MRGCOG and City staffs about transit issues and planning techniques. No plans exist to upgrade planning capability of the Transit Agency, since the agency primarily serves in an operational capacity. The staff of the Transit Agency is made up mainly of older bus operators who were promoted to administrative positions and who do not have a transportation planning background.

The new Albuquerque Department of Transportation and Planning will assume more responsibility for transportation/mass transit planning, but will rely on MRGCOG for backup and regional coordination.

The second and third Technical Studies Grants resulted in the increased involvement of the University in transit research.

MRGCOG involvement in the second and third Technical Studies Grants has changed its emphasis from long-range transportation planning to a more realistic short-range planning process. This is reflected in the annual 1976 Transportation Improvement Planning Report.

The staffs of the MRGCOG and the City Department of Transportation have coordinated and worked jointly in the preparation of the TDP, TIP, and Prospectus through staff exchanges. The agencies have differed, however, on the relative emphasis between long and short-range planning activities within the technical support program. Both agree that technical assistance resources are scarce, but the MRGCOG favors a larger proportionate allocation for short-range planning activity. While important, this conflict has been subordinate to the attainment of a mutually supportive institutional structure and climate.

Transit planning is a relatively new consideration within the overall continuing transportation planning process of MRGCOG. The agency is as yet uncertain about the role of transit in future comprehensive regional development and transportation planning.

The organizational structure of the Albuquerque Transit Systems has undergone changes since the approval of the first Technical Study Grant in early 1974. The reorganization can be attributed to the reorganization of the local government in 1974. The consultant who prepared the Transit Development Report, February 1975, supported the reorganization and felt it was appropriate that the transit system be continued as a city department under the supervision of the Director of Transportation and Planning. On the other hand, political and civic leaders felt no change was needed in the organizational structure.

In summary, professional transit planning capabilities in the Greater Albuquerque area have increased and improved since the first Technical Study Grant in 1974. Coordination of transit planning has increased between the MRGCOG and the City, and a greater emphasis is being placed on short-range transit planning by both agencies.

## New Capital Acquisitions

Under private ownership neither fleet replacement nor purchase of needed tools or shop equipment was made. The conditions remained the same under city ownership from 1965 until 1974. For example, the maintenance crew used older buses to obtain spare parts because the manufacturer of the buses did not stock the parts. The maintenance garage exhaust system did not have adequate capacity to remove all the fumes while buses were being repaired. Consequently, the shop doors remained open during the cold months. The lack of city funds prevented the implementation of

renovations. The service area for customers and office facilities for maintenance personnel lacked heat during the cold months, resulting in lower efficiency and productivity.

In 1966, six new buses were acquired with City general funds. In 1974 the City again purchased six new buses with the assistance of an UMTA Capital Grant. In March 1975, the City ordered 52 new buses, which were purchased with an UMTA Capital Grant of $3,460,000 and local matching share of $692,000.

The 1972 Preliminary Transit Development Program was first evidence of a systemized method of identifying the need to upgrade capital equipment and facilities.

In the 1975 TDP a capital program was developed with staged implementation plans, including a fiscal and funding analysis to achieve the recommendations. The TDP is included in the 1976 Transportation Improvement Program, which has been approved by the MRGCOG Board of Directors.

As a result of the Tecnical Studies Grants, the 5-year capital improvement program, as stated in the TDP, has specifically identified the need to modernize the administration and shop facilities, and purchase new furniture and office equipment, bus equipment assemblies for new air conditioned buses, six service vehicle replacements, and two additional units.

An ambitious passenger amenities program also is planned. Passenger waiting stations are proposed for major boarding and transfer locations and are recommended for installation at principal park-and-ride sites. To complement the bus shelter installation program, 1,000 new bus stop identification signs would be purchased to identify properly all transit lines. To provide additional user information, promotional display units would be constructed and installed at major trip generators throughout the study area. The capital program also provides for the construction of a pulse center station and the acquisition of bus signalization units.

The pulse center station, which is a small bus garage located at the regional shopping center, avoids bus travel through the congested adjacent areas and maintains schedules for buses serving suburbs.

Finally, under the proposed program, the existing 67 vehicle bus fleet would be replaced by newer vehicles, while 18 additional buses would be purchased for fleet expansion.

The 1976 Capital Grant application is for the purchase of bus shelters, bus stop identification signs, new communication equipment, and 24 new buses. The application was submitted in late May to UMTA for approval. The total

funding request was for $2,535,125, with a local matching share of $567,025.

New or Improved Services With Existing Facilities

Improved utilization of facilities and more efficient transit service have been recommended by the 1975 TDP. All recommendations have yet to be implemented.

In the TDP, several transit system management functions were seen as warranting improvement, and the following recommendations were made:

1. Farebox revenue should be collected daily and tabulated with segregation by route.

2. The transit system should adopt a standard transportation system of accounting such as that developed by the Interstate Commerce Commission or the American Public Transit Association.

3. The transfer system should be modified by a design change to the transfer receipts.

4. The MAINSTEM computer program, a service contracted with a private firm to monitor the maintenance aspect of transit operations, should be discontinued unless shorter turnaround is obtained.

The transit system plans to implement all of the recommendations within fiscal year 1975-76, with the purchase of 52 new buses. Disbandment of the MAINSTEM computer program is under discussion and review.

The five-year TDP plan recommends the following low capital intensive traffic management alternatives:

1. Improve traffic signalization techniques that would maximize the flow of people rather than vehicles in the downtown area;

2. Create special bus turns to expedite the flow of buses in congested areas;

3. Create more minimum bus stop lengths;

4. Improve roadways in order to increase bus operating speed, dependability and speed;

5. Establish differential parking policies in downtown Albuquerque to discourage commuters from parking for long periods of time;

6. Modify fixed routes and extend them to all developing areas of the metropolitan region;

7. Reduce service on routes with low passenger loads;

8. Institute pulse scheduling for the regional shopping centers;

9. Institute package group or subscription bus service for groups of riders traveling to an from major industrial parks;

10. Institute park and ride routes for suburban passengers for downtown and regional shopping centers;

11. Institute a comprehensive marketing program to address improvements to public timetables, system maps, media advertising, telephone information service, and bus scroll signs.

None of these alternatives have been implemented. It is expected that the City will use its general funds combined with community development funds to implement some of the recommendations by the end of the year.

## Institutional Climate

Technical Studies Grants have been an important factor in the evolution of the current institutional context of transit planning and operations.

MRGCOG and the City of Albuquerque have good relations. As planning becomes more institutionalized, relations should improve and mature with the mutual benefit of increased in-house transportation planning capability.

It is quite evident that the MRGCOG has been an effective planning vehicle for the local governments because of its ability to deliver grants. It has the capability of developing grant proposals and applications and moving them through the City, County, and State machinery with relative ease. The MRGCOG relations with the UMTA Regional Office have been generally cooperative and constructive.

The State of New Mexico does not have a State Department of Transportation. The energy and air pollution crises of 1973 and 1974 have caused some rethinking by the State. The Governor has proposed the establishment of a cabinet post for transportation to counteract the power and influence of the highway interests and to promote more transit planning in the urban areas of the state.

Citizen task forces also have been assembled and are actively participating in the Technical Study Grants Programs.

Although citizen participation is institutionalized within the COG's planning structure through the MRGCOG Citizens Advisory Groups, subregional input is the primary means of citizen involvement. Meetings and hearings are frequently held on a subregional basis, where the plans and programs affecting individual subregions are discussed. Turnout and interest at this level are greater than at the regional.

In May 1974 residents voted to authorize a $695,000 General Obligation Bond to be used as its local matching share for the Capital Grant request to UMTA. In October 1975 a second bond of $985,000 was approved by the voters to be used as its local matching share for the Capital Grant request to UMTA.

The energy and air pollution crises coupled with community activism led by the League of Women Voters and University students for improved transit service created the climate for improved citizen participation in the MRGCOG's technical study effort. There is a greater awareness on the part of the local citizenry about the government complexities in improving the local transit system.

Transportation planners from the MRGCOG and city transportation agency and elected officials felt that citizen involvement in the study, university students advocating transit, and the activities of the League of Women Voters led to the passage of the transportation bond issue in the October 1975 election.

## Conclusions

The utilization of UMTA Technical Studies Grants in the Albuquerque region is a relatively recent occurrence. The first UMTA Technical Study Grant was received in early 1974.

The three grants received by MRGCOG have assisted in the transfer of transit services and operations from private to public ownership and management. Transportation planning emphasizing multi-modal strategies is beginning to evolve as local planning staffs become more professional and competent. Citizen involvement in transit planning and policy has been integrated within this context. Technical Studies Grants have played an important role in the recent reorganization of the regional planning body (MRGCOG) and transit service and fleet improvements.

At this juncture, with minimal traffic congestion or parking problems, transit patronage consists almost

exclusively of captive riders with no alternative means of mobility.

See the summary matrix, Table 3.

TABLE 2. ALBUQUERQUE - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| NM-09-0001 | MRGCOG | $90,000 | FY73-74 |
| NM-09-0002 | MRGCOG | 42,000 | FY74-75 |
| NM-09-0002 (continuation) | MRGCOG | 48,000 | FY75-76 |

# TABLE 3. ALBUQUERQUE - SUMMARY- IMPACT OF TECHNICAL STUDIES PLANNING

Region VI

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 3 | 180K | 1974 |
| Capital, Section 3 | 2 | 7.19M | 1975 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | x | x | | Increased emphasis on short range planning by MPO. |
| Operational | x | | | | | | Many low capital intensive changes planned; none implemented. |
| Long Range | x | x | 5 | x | x | | |
| Modelling | x | x | x | x | x | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | 5 | x | x | | Fleet replacement and modernization underway. |
| Garage/Maintenance | x | | 5 | x | x | | |
| Operational/Other | x | | 5 | x | x | | Passenger amenities planned; will obtain 1000 bus stop signs. |
| Park and Ride | x | | 5 | | x | | |
| **Service Improvements** | | | | | | | |
| Special Services Handicapped & Elderly Demand Responsive Management | x | | 5 | | x | | |
| Marketing | x | | 5 | x | | x | Comprehensive program planned. |
| Other | | | | | | | |
| Route Coverage | x | | 5 | x | | x | |
| Route Scheduling | x | | 5 | x | | x | |

## 5.2 BILLINGS MONTANA

### Demographic/Socio-Economic Background

Billings is located along the Yellowstone River in southeastern Montana 525 miles north of Denver. The Billings SMSA is contiguous with Yellowstone County. Billings is the largest and most rapidly growing community among Montana's 8 incorporated places with more than 10,000 residents. Between 1960 and 1970, the city's population increased 16.5 percent to 61,581, while the county's poulation increased to 87,367. Overall growth has slowed. From 1920 to 1960, Billings experienced an average decennial population increase of 40.8 percent.

By contrast, Montana's population increased an average of 18.2 percent each decade between 1920 and 1960. During the 1960's the state's population grew 2.9 percent.

Billings has a population density of 3,127 persons per square mile. This is a relatively low density, since most U.S. SMSA's with central cities of less than 100,000 residents have population densities between 5,000 and 7,000 persons per square mile. But because the region is arid, the population is highly concentrated. Annual rainfall is 11 inches, of which approximately two-thirds is snowfall. Families must locate near water lines. Approximately 82,000 persons, 92 percent of the SMSA's residents, live either within 5 miles of Billings CBD or in Laurel, a suburb 8 miles south of the city with a population of 4,459. These populated areas comprise less than 2 percent of Yellowstone county's 2,642 square miles.

Billings is the largest city in a 500,000 square mile area, one-sixth of the continental U.S., bounded by Spokane, Washington, Salt Lake City, Denver, and Minneapolis. Within an approximate 200 mile radius, Billings is the only community with more than 10,000 residents.

Billings is a goods and services distribution center. Persons in the region depend upon the community's recreational, shopping, and health care facilities. Great Western Sugar Company operates the nation's largest sugar refinery, which processes sugar beets farmed in the Yellowstone River Valley. Billings is the largest processing terminal for Canadian oil in the United States. Major pipelines from western Canada pass nearby. Six oil refineries have more than 1500 employees. Initial mining of recently discovered coal deposits in western Montana and northern Wyoming have also contributed to Billings economic stability. The community has become a financial center for mineral enterprises.

Family incomes in Billings vary less than the national average. In 1970, 18.3 percent of Billing's families had annual incomes greater than $15,000 (U.S., 20.6 percent), while the proportion with incomes beneath the poverty level was 9 percent (U.S., 20.3 percent). The proportion of Billings population aged 65 and older was 4.7 percent compared to 8.4 percent nationally. American Indians, Blacks, and Spanish-speaking persons represent less than 3 percent of the community's residents.

## Transportation Characteristics

### Trip Characteristics

Because of the region's concentrated population, travel distances in Billings are relatively short. Since population density is also uniformly low and the community has a grid network of wide streets, traffic congestion is generally lacking. These characteristics encourage auto travel. It is estimated that 90 percent of Billings families own at least one automobile, and approximately 40 percent own two or more automobiles. The community's transit-dependent population is small.

### Transit History

Because of difficulties in maintaining profit margins, public transportation has been operated by a succession of four private companies from 1923 to 1970: Pioneer Transit, Motorized Transit Company, Western Transit, and Billings Motor Coach.

Since 1955, Billings has subsidized approximately 40 percent of transit operating expenses, partly as in-kind services. Buses were stored at a municipal garage, which also served a transit operating headquarters. The city also paid for fuel and maintenance expenses, including labor.

Despite these subsidies, operating losses continued. When the last private company announced bankruptcy in 1970, the transit system was purchased by five downtown merchants who incorporated Bus Lines of Billings. This was seen as an interim measure until Billings could establish a public transit authority.

In October 1972 the city incorporated Billings Transit System (BTS). The Mayor and city council appointed a nine-member Transit Commission responsible for formulating public transportation policy and appointing BTS's director.

Until 1972, transit service was limited to five buses operating four routes along main thoroughfares to the CBD. In fiscal 1972-1973, the first year for which annual patronage data are available, there were 118,223 passengers.

Currently, 14 buses operate 11 routes throughout the city. Ridership has increased 473 percent to 436,000 annual passengers during fiscal 1975-1976.

Comparing 1974 and 1976 ridership surveys, patronage among middle income families has grown dramatically such that BTS now has substantially more non-transit-dependent than captive riders. Families with an annual income less than $4,000 accounted for 49 percent of transit riders in 1974 but 18.4 percent in 1976. Additionally, an annual family income greater than $15,000 characterized 9 percent of transit patronage in 1974 and 31.8 percent in 1976.

Approximately 33 percent of 1974 riders had a driver's license. The proportion in 1976 is 56.3 percent. Comparable 1974 data are not available, but the proportion of BTS passengers in 1976 from families owning at least one automobile is 81.6 percent, and 34.5 percent own two or more automobiles.

Ridership increases are related to the transit system's expansion and quality of service. Since 1972, bus miles traveled have increased 242 percent to 438,000. According to the 1976 ridership survey, 98.6 percent of passengers agreed that BTS buses were clean and comfortable, and 95.7 percent agreed that drivers were courteous. Also 96.2 percent stated that bus schedules were generally available, and 85.6 percent of passengers were able to reach their destination without transfer to another bus.

While ridership has increased sharply, BTS's operating deficit has grown even more rapidly, and passenger revenues have actually declined. During 1972-1973, BTS's operating budget was $195,000, and passenger revenues were $120,000, indicating a $75,000 deficit. During 1975-1976, the operating budget was $386,000, but passenger revenues declined to $64,000. The resulting $322,000 deficit represents a 508 percent increase since 1972.

Revenues declines are attributed to BTS's fare structure. Riders may purchase various transit passes at discounts ranging from 20 to 60 percent. While the base fare is 25 cents, the average fare for paying passengers is 16 cents. All Billings residents aged 65 and older ride free, accounting for 13.8 percent of BTS's patronage.

## Transportation Planning Process

### History

Public transportation planning is a recent development in Montana. Billings has the state's only bus transit system. A 1969 comprehensive transportation plan briefly addressed transit, noting the community's need for

continuing bus service. But the report failed to present any plans for developing public transportation.

In January 1975 Billings applied for an UMTA Section 5 Operating Grant. The city was informed that is was necessary to prepare a 5-year Transit Development Program (TDP) before the grant could be approved. In May 1975 Billings directed the Yellowstone City-County Planning Board (YCCPB), the designated agency for urban transportation planning, to apply for a Section 9 Technical Study Grant. It was decided that YCCPB should draft a 5-year transit plan. The Technical Study Grant would be used to hire a consultant to revise the TDP and prepare a long range transit plan.

The planning board completed a TDP draft during August 1975. The Technical Study Grant was approved in December, and in March 1976 a contract was signed with Hennignsk, Durham, and Richardson, a transportation planning firm from Omaha, Nebraska.

Goals

YCCPB's goals for public transportation planning are to sustain BTD's ridership growth, improve transit service, and expand coverage, while decreasing the transit system's operating deficit. The planning board has been seeking to estimate levels at which patronage may stabilize and to develop specialized services so that BTS can maintain its high proportion of middle income riders. Reducing deficit costs requires implementation of more efficient transit management techniques and increasing passenger revenues, without endangering BTS's favorable patronage situation.

Agencies

With input from the Montana Department of Highways (MDH), Billings and YCCPB have jointly developed an organizational structure for transportation planning composed of a Technical Advisory Committee, a Policy Coordinating Committee, and a Citizens Advisory Committee. The planning process primarily focuses on highway development and urban street maintenance. Since transit planning began in 1975, each committee has dealt with transit issues, whenever necessary, in the context of a meeting's regularly scheduled business. There are no subcommittees specifically concerned with transit.

The Technical Advisory Committee develops transit planning proposals, prepares UMTA grant applications, and supervises planning studies conducted by YCCPB's research staff. Except for BTS's director, the committee's nine members have highway backgrounds, including representatives from Billing's Traffic Department, Yellowstone County

Highway Department, MDH, and Federal Highways Administration (FHWA).

The Policy Coordinating Committee approves all transit planning proposals, administers UMTA grants, and supervises planning implementation. Membership is composed of Billings mayor, two city council appointees, the chairman of the Yellowstone County Commissioners, and one representative eacn from MDH and FHWA.

The Citizens Advisory Committee, which has 25 members comprising a cross section of Billings area residents, is appointed by YCCPB's senior transportation planner. Members are local citizens, officials of civic and social service organizations, and representatives from transit-dependent groups, including American Indians, the elderly, and welfare recipients. The committee meets monthly with Policy and Technical Advisory Committee members to discuss issues related to improving residents' access to goods and services while maintaining neighborhood stability.

YCCPB is chiefly an urban planning agency for Billings that conducts studies concerning transportation, land use, and community development. A majority of members on all planning committees are city residents. The Board's authority is restricted to a 4.5 mile radius form Billings CBD.

The Montana Highway Department is influential in transportation planning process. Representatives from MDH's regional office are members of the Policy and Technical Advisory Committees. MDH also indirectly pays for YCCPB's Transportation Planning Department's entire operating budget.

The FHWA annual urban highway planning budget is allocated such that each state receives at least .5 percent for its urbanized areas. MDH receives approximately $300,000 for Montana's two SMSA's, Billings and Great Falls. Since the $150,000 annually available for Billings exceeds the community's highway planning needs, MDH allocates the funds to support all YCCPB transportation planning activities. Such actions are discretionary, and MDH may withdraw funds from non-highway planning research.

FHWA funds were used to finance YCCPB's draft TDP. Furthermore, since the Board filed its UMTA Technical Study Grant request late in FY76 and did not wish to delay application, available UMTA funds were limited to $9,000. With UMTA's consent, MDH contributed $6,500 from FHWA funds to cover the proposed planning study's estimated cost.

Although Montana has no legislation addressing transit planning, the state thus has substantial potential to

influence transit planning. Another contributing factor is that the Montana Office of the Governor annually allocates $75,000 to subsidize public transportation operating costs. Billings receives $55,000, and Great Falls, which has a four vehicle dial-a-ride operation, receives $20,000. There have been cooperative relationships between Billings and the state level.

Technical Studies Grants

Billings has received one Section 9 Technical Study Grant, which was awarded to the YCCPB. In June 1976 application for a second Technical Study Grant, to initiate a marketing program, was discussed. Billings' motivation for the second grant was to facilitate UMTA approval of Section 5 funds. Currently, applications for Operating Grants for FY75 and FY76 are still pending. (See Table 4.)

Billings City Council decided not to apply for a second Technical Studies Grant because FHWA funds were available to finance needed transit studies. It was thought that a Technical Study Grant, which would require a 20 percent local funding share from city tax revenues, would be a financial burden.

## Transportation Planning and Implementation

### 4.1 Development of Professional Planning Capabilities

Following initial participation in the Technical Studies Grants Program in 1975, Billings has initiated a transit planning program. YCCPB's two transportation planners allocate approximately 25 percent of their time to transit planning.

Currently, in addition to on-board ridership surveys, YCCPB intends to conduct Home Interview Surveys and Employee Interviews to obtain information about non-riders. The Board also will review BTS's published schedules and implement needed changes semi-annually. YCCPB has also begun to integrate highway and transit planning. Future highway needs will be studied together with the city's growing transit usage.

New Capital Acquisitions

In 1973 Billings received an UMTA Capital Grant to purchase 5 new 33-passenger buses and 5 used buses. A 1974 Capital Grant was employed to obtain 5 additional new buses and to also renovate garage and maintenance facilities.

These grants, which were received prior to Billings receiving a Technical Study Grant, enabled BTS to expand transit service city-wide. Headways were reduced, and seven

new bus routes were initiated. The capital equipment purchases provided the basis for improving bus service and stimulating the more than 400 percent ridership increase that Billings has experienced since 1972. Anticipated service expansions during the next 5 years will require purchase of two additional new buses.

New Or Improved Services With Existing Facilities

YCCPB's draft TDP recommends reducing bus headways to 20 minutes from the current 45 minutes, and adding nine new bus routes. The consultant's report, expected January 1977, will present an implementation program for these improvements and propose special services to sustain patronage from non-transit dependent persons. However, to date, pending receiving this report, BTS has initiated no changes in transit services.

Institutional Climate

Both transit and transit planning are in expanding stages. Prior to 1972 Billings did not have a city-wide public transportation system. Except for occasional ridership surveys Billings had conducted no transit planning until mid-1975 when the community was informed that planning was prerequisite to receiving UMTA operating assistance.

Billings has demonstrated institutional support for public transportation. When transit was privately owned the city subsidized 40 percent of the system's operating expenses each year from 1955 through 1972. As a public service the city had always provided bus stop signs. City officials readily supported the establishment of public ownership and substantially expanded bus service, recognizing that operating deficits would rise.

Despite a 508 percent deficit increase since 1972, the 25 cent base fare has not changed. Furthermore, upon acquiring the transit system Billings abolished all fares for the elderly and implemented a discount fare structure. The average 16 cent fare represents a 36 percent discount.

The fact that CBD merchants operated Bus Lines of Billings for 2 years indicates the business community's attitude toward public transportation. Billings merchants maintain approximately 40 bus stop benches, the backs of which each sponsor uses for advertising.

Public support is shown by the apparent mode shift from auto to transit. Non-transit-dependent persons account for a high proportion of BTS ridership increases. Since 1974 passengers from families having an annual income less than $4,000 actually decreased from approximately 130,000 to 80,000. But passengers from families with an annual income

greater than $15,000 have increased from about 24,000 to nearly 140,000.

Furthermore, according to the 1976 ridership survey, 56 percent of BTS passengers would approve increasing city taxes to maintain transit service. Approximately 80 percent stated that they would continue to use transit if fares were increased.

Conclusions

Although Billings first Technical Study Grant was approved less than a year ago, the program has had important initial impacts. Public transportation planning capabilities have been developed in a small community where planning previously was oriented toward highway development. Transit has become a regular component in both short and long range comprehensive planning.

Billings recognizes that ridership cannot continue to add 100,000 passengers annually. Billings cannot continue to afford a transit deficit that is approaching 20 percent of the city's own budget. Yet, Billings is committed to substantially expanding public transportation.

Planning has become the focus for finding ways to provide more service, control deficit costs, and maintain patronage from a ridership having a high potential to shift to auto travel.

See the summary matrix, Table 5.

TABLE 4. BILLINGS - TECHNICAL STUDY GRANT

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| MT-09-002 | YCCPB | $18.5K* | 1975 |

*Includes $6.5K from FHWA planning funds.

# TABLE 5. BILLINGS - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region VIII

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 1 | 18.5K (1) | 1975 |
| Capital, Section 3 | -- | -- | |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | X | | 5 | X | X | | MPO drafted TDP, consultants revising final report Jan. 1977. |
| Operational | X | | | X | X | | Collection and use of management data. |
| Long Range | X | | 15 | | X | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | X | | 5 | X | X | | 27 buses for fleet replacement, service expansion. |
| Garage/Maintenance | | | | | | | |
| Operational/Other | | | | | | | |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | | | | | | | |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | X | | | X | | | Plans to apply for Section 9 grant for marketing program. |
| Other | | | | | | | |
| Route Coverage | X | | | X | X | | Route expanaions planned to increase ridership. |
| Route Scheduling | X | | | X | | X | Capability developed for semi-annual schedule revision. |

(1) Grant includes $6.5K from Federal Highway Administration funds for urban transportation planning.

## 5.3 BIRMINGHAM, ALABAMA

### Demographic/Socio-Economic Background

The City of Birmingham is located in central Alabama. Birmingham is the county seat of Jefferson County, the largest and most urbanized county in the predominantly rural state. The Birmingham urbanized area comprises 19 small incorporated municipalities and the City of Birmingham.

The population of the Birmingham urbanized area increased from 434,565 in 1960 to 558,099 in 1970, a 7.1% percent gain. The population of Jefferson County increased from 634,834 to 644,991 during the same period, a 1.6 percent gain.

The population loss of 11.7 percent in the city of Birmingham is expected to continue because of migration to outlying suburbs, residential construction along the super-highways, the migration of residents to other states or areas of Alabama where better employment opportunities are available.

The Birmingham urbanized area is the principal trade and industrial center of central Alabama. Total employment for Jefferson County in 1960 to 1970 increased from 265,603 to 295,316, an increase of 29,713 jobs or 11.1 percent. Between 1960 and 1970 employment decreased 33.7 percent in the agriculture sector, 43.1 percent in the mining sector, and 24 percent in the paper, printing, metals, and chemical sectors. There was a sharp employment increase of 71.9 percent in the transportation, communication, utilities, finance, insurance, and real estate sectors. In the government and professional service sectors, employment increased 33.2 percent and 29.1 percent respectively.

Commercial activities of the Birmingham CBD are ringed by industrial uses. These industrial uses are predominantly oriented to the steel and manufacturing economy of the area and are also located along the valley corridor and to the north and northwest of the central city. Residential areas are interdispersed within predominantly industrial zones except for peripheral locations and areas north and northeast of the city limits of Birmingham.

Population density in the Birmingham urbanized area is moderate, 3,760 persons per square mile. Outside of the urbanized area population densities decline dramatically. For Jefferson County, including the Birmingham urbanized area, the average poulation density is 576 persons per square mile.

## Transportation Characteristics

### Trip Characteristics

The Birmingham Regional Planning Commission estimates that 3 percent of the person-trips in the area are made by public transit. For 1975 this resulted in 415 million daily person-trips.

Information for automobile and transit ridership for the Birmingham urbanized area comes from an onboard origin and destination survey conducted in 1972 by Wilbur Smith & Associates and published in the Birmingham Transit Study, June 1972.

Bus travel in the Birmingham urbanized area is heavily oriented toward commuting to work. About 80 percent of the riders used the bus to go to and from work, 3 percent for shopping, and 17 percent for school and personal business. Of the 33,122 transit patrons interviewed, 73 percent did not have a driver's license, and 83 percent did not have an automobile for the trip.

The patronage of the public and private transit systems consists primarily of captive riders. In 1975, 50 percent of Birmingham's population were minorities, mainly blacks, and 11.7 percent were elderly. For Jefferson County minorities and the elderly constituted 32 percent and 10.1 percent respectively of the total population.

An unregulated and unlicensed jitney operation flourishes in the area. Automobiles cruise the bus routes, especially the downtown streets, during the heavy transfer interchange in the afternoon and evening, offering a quasi-taxi service that follows bus routes or departs from them if the passengers pay an additional charge. The vehicles display no signs, but apparently customers recognize the jitney operators. The fare charged is the same as the buses, more if a quasi-taxi service is provided.

### Transit History

Prior to 1972, there were three privately owned bus companies serving the Birmingham area: Birmingham Transit Corporation, Vestavia Bus Lines, and Lucia Bus Lines. Since 1973, one public transit system and one private bus company have operated.

Until 1973, Birmingham Transit Corporation was the dominant and oldest private transit operator. It had a fleet of 160 buses and operated 18 routes. Birmingham Transit Corporation operated under the ownership of Chromalloy-American Corporation, which owns 30 private transit systems throughout the United States.

Like many other bus systems, BTC began to decline during the 1960's. Annual bus mileage decreased from 6,941,509 to 5,177,617 miles (25 percent) during the period 1966 through 1970. During the same period total operating revenue declined from $4,182,958 to $3,828,505 (8.6 percent) and total cost of operating a bus mile increased from 58.8¢ to 77.1¢. From 1966 to 1970, revenue passengers declined from 15,345,115 to 10,609,120, a reduction of 30.8 percent.

Lucia Bus Lines operated two routes with four school buses and charged a 35¢ fare. Lucia furnished direct service to U.S. Steel's Ensley and Fairfield Plants and also served as a feeder to the Birmingham Transit Corporation. In 1970, Lucia operated over 132,000 miles and carried 81,000 passengers.

In 1970, BTC notified the city that it was going to discontinue services because of the increasing operating deficits and inability to raise capital to purchase new buses. The City of Birmingham requested the Birmingham Regional Planning Commission apply for a Section 9 Technical Study Grant to evaluate short-range transit needs of Birmingham and determine how to best finance and administer the required services.

In 1972 the Birmingham-Jefferson County Transit Authority (BJCTA) was established. In fiscal 1973-74 BJCTA received its first Section 3 Capital Grant which was used to purchase the two private carriers, Birmingham Transit Corporation and Lucia Bus Lines, and form a public carrier.

In March 1973 the BJCTA retained ATE Management and Service Company of Cincinnati, Ohio, to manage and operate the public transportation system. ATE operates the transit system with a professional resident management staff consisting of a resident manager, director of marketing, director of transportation, and director of maintenance.

Under public ownership, there is currently a 185-bus fleet with an average age of 13.2 years. Eighty-five percent of the fleet is more than 10 years old. Service is provided on 18 routes, and 4,799,879 transit vehicle-miles were provided in 1975. The current fare is 40¢ per zone with additional 10¢ charge for transfers. The transit system is expected to have a new operating deficit of $2,100,000 for fiscal year 1976.

Currently, the BJCTA provides transit service to 9 of the 19 municipalities in the Birmingham urbanized area. At the time of public acquisition, transit service was offered to all municipalities that agreed to pay the BJCTA per capita tax of $1.30 per year for each resident for 5 years (1973-1978). Only nine cities exercised the option. The

BJCTA plans to use these funds as its local matching share for Section 3 Capital Grants.

Vestavia Bus Lines, the second largest local bus line until 1972, is now the remaining private operator. It operates five routes between downtown Birmingham and various areas in Vestavia, a community in Jefferson county. The owner of the bus line did not provide any historical, operating, or financial information. Vestavia Lines primarily transports domestic labor in the morning and afternoon from downtown Birmingham to the affluent residential areas of Vestavia. It operates on a "closed door" basis in the City of Birmingham. Vestavia Lines charges a 35¢ fare, with a 10¢ additional zone charge in some routes. It does not interchange fares or transfers with the public carrier.

## Transportation Planning Process

### History

Prior to 1970, no transit planning activities had been conducted by private operators or transportation planning agencies. From 1963 to 1970 transportation planning in the Birmingham urbanized area was focused on streets, highways, and aviation.

In 1965, the Alabama State Highway Department in conjunction with the Birmingham Regional Planning Commission (BRPC) initiated the area's first comprehensive transportation planning effort to qualify for federal highway assistance. In 1971, the study, The Birmingham Area Transportation Plan, was completed and published by the BRPC. It included land use data and analysis of transit usage. The study was highway-oriented and did not present formal transit planning elements.

The study was not initially adopted by the Board of BRPC or the City of Birmingham because some local governments opposed the location of proposed highway corridors and the lack of emphasis on transit planning. In 1972, the City of Birmingham adopted the plan on the conditions that the study be updated, that it have direct input into the new study, and that the transit planning roles of the BRPC and newly created Birmingham-Jefferson County Transit Authority be defined. Following 2 years of debate on these issues, the Federal Highway Administration decertified BRPC from April 1974 to April 1975 because it had not adopted a comprehensive transportation plan and because its transportation planning process was weak. Finally, in May 1975 the BRPC and the BJCTA agreed that BRPC would be responsible for long-range transit planning and BJCTA would be responsible for those services.

In July 1975 the Federal Highway Administration awarded BRPC a transportation planning grant of $600,000 to hire staff for transportation planning and programming and to expand its involvement in the funding of road and transit projects for the urban area of Jefferson County. BRPC retained the team of Kimley-Horn and Associates, Simpson & Curtin, and Creighton, Hamburg and Associates to develop a transportation plan for the Birmingham area through the year 2000 that also would address short-range and subregional problems. The study will take 2 to 3 years to complete and will emphasize the feasibility of alternatives to the energy-inefficient automobile.

On December 30, 1975, the Birmingham Urban Area Transportation Policy Committee of the BRPC adopted a proposed Transportation Service Improvement Plan for fiscal years 1976-1980. This plan called for the inclusion of any proposed Birmingham Transit Authority capital improvement and operating assistance projects.

Goals

The goals of BRPC and BJCTA are to improve the public transit system and to bring more people into the CBD, thereby increasing commercial and retail sales and justifying the major capital expenditures for urban renewal in the area.

Agencies

The Bureau of Urban Planning of the Alabama Highway Department is responsible for the technical planning of all urbanized area transportation studies within Alabama. In January 1974 an interagency agreement between the Department and the Birmingham Regional Planning Commission (BRPC) designated the BRPC as the agency responsible for conducting all long and short-range transportation planning for the Birmingham urbanized area.

The BRPC is the regional comprehensive planning agency, MPO, HUD areawide planning organization, and regional A-95 review agency for the area. It is also a public planning agency for the six counties located in central Alabama: Blount, Chilton, Jefferson, St. Clair, Shelby, and Walker. Operating under Act 1126 of the 1969 Alabama Legislature, the agency is involved in social, economic, and physical planning activities and program development.

Over 70 cities, towns, and counties within the 6-county area are members of the BRPC. Each member government appoints a representative, who selects a 17-member Executive Committee to oversee the day-to-day operation of the agency and staff. Each member government contributes on a voluntary basis to the overall operating budget. The money is used for operating expenses as well as matching funds to

secure Federal and state grants for planning and program development.

There are primarily two types of programs within the BRPC planning division, regional planning and local assistance planning. Regional planning is basically physical planning for the entire six-county region as a whole. Local planning assistance provides comprehensive planning assistance to member governments, such as in the formulation of comprehensive plans, sketch-plans, zoning ordinances, sub-division regulations, and land-use analyses.

The BJCTA, the public transit operating agency, has a limited transit planning role. The BJCTA contracts with BRPC to fill its short and long-range transit planning needs.

The Board of Directors of the BJCTA consists of nine members, five from the City of Birmingham and one each from Jefferson County and the unincorporated municipalities of Bessemer, Homewood, and Mountain Rock, which are serviced by the BJCTA. The BJCTA retained ATE Management and Service Company in July 1973 to manage and operate the transit system for 3 years. ATE is also responsible for conducting special transit planning, management, public relations, and other studies, for which it is separately compensated.

Technical Studies Grants

The BRPC has received three Section 9 Technical Studies Grants totalling $457,000. The second and third grants were amendments to the first. (See Table 6.)

In 1970, when the Birmingham Transit Corporation announced plans to cease operation, an organization of citizens and businessmen asked the Mayor to seek funds to purchase the transit company. The Mayor had the BRPC file an application for a Technical Study Grant, which was approved in July 1970.

The initial Technical Study Grant (AL-09-0005) for $50,000 was received in July 1970. The purposes of the study were to assess ownership alternatives for transit operations, evaluate the financial and managerial aspects of the private transit operators, and develop a capital improvement plan for transit.

Wilbur Smith and Associates were retained to conduct the first comprehensive transit feasibility study for the Birmingham area. In June 1972 the Birmingham Transit Study was completed and has since served as the area's Transit Development Program. This study assessed the management, ownership, and financial alternatives for continuing transit services in Birmingham. Its recommendations led to the establishment of the BJCTA, which acquired the two private

bus companies. Acquisition by the City of Birmingham was assisted by the first Section 3 Capital Grant for the Birmingham urbanized area.

An amendment to the Technical Study Grant of $136,000 was received for fiscal year 1974-75 in July 1974. The purpose of this study was to update the 1972 Transit Development Program, prepare a Transit System Management Program to be used by the BRPC for their annual Transportation Improvement Plan report, and prepare the transit elements for the Birmingham area transportation plan.

Actual work on this grant was delayed 10 months after award until the transit planning roles, relationships, and responsibilities of the BRPC and BJCTA were clarified.

Another amendment of $136,000 for fiscal year 1975-76 was awarded in July 1975. This effort includes a rail facilities improvement study element to examine whether abandoned railroad trackage in the Birmingham Area Corridor could be used by a rapid transit system. Planning activities have not begun on this grant, as the BRPC is waiting for the report from the initial amendment.

Transportation Planning and Implementation

Development of Professional Planning Capabilities

Prior to 1970, transportation planning capability in the Birmingham urbanized area resided in the Alabama State Highway Department and the BRPC. It was street, highway, and aviation-oriented as reflected in the first comprehensive transportation study. Private consultants prepared technical long-range regional transportation planning studies to enable the agencies to qualify for federal highway funds. Agency staffs served as managers, coordinators, and supportive technical staff to private transportation consultants. Transit planning had a very low priority with both agencies because transit had been privately owned.

In 1971, an awareness of the need for short and long-range transit planning was locally generated when the majority of the municipalities on the BRPC Board refused to adopt the Birmingham area transportation plan. They refused to adopt this plan because it did not include a transit element with sufficient service. It was felt that service should be more equitably distributed in order to tax equally all municipalities to acquire the private bus company.

The Birmingham Transit Study of 1972, supported by the first Section 9 Technical Study Grant, was the first shortt-range transit planning study. Updated by the ATE Management and Service Company in December 1975, it served as the

Transit Development Program and became the basis for the three Section 3 Capital Grants awarded to BJCTA.

The initial Technical Study Grant that produced the Birmingham Transit Study also raised the issue in 1973 between the BRPC and the BJCTA over their respective roles and responsibilities for transit planning. The issue was resolved in May 1975 with BRPC taking authority and responsibility for long-range transit planning and the BJCTA for short-range transit planning. The BJCTA retained the option of contracting with the BRPC to perform its short-range transit planning studies.

Issues concerning regional taxation to support acquisition and operation of a regional transit agency, transit operator agency responsibilities for transit planning, citizen participation, and participation as a member of the BRPC, contributed to decertification of BRPC as an applicant for federal highways funding from April 1974 to April 1975. The BRPC Board's efforts were necessarily diverted to resolve these issues postponing the selection of consultants for the amendments to the Technical Studies Grants, and delaying the transit planning process from mid-1973 to December 1975.

New Capital Acquisitions

The BJCTA has received a total of three Section 3 Capital Grants since 1973, totalling $3,059,110.

The initial grant of $1,241,101 was awarded in July 1973 and was used to finance the acquisition of the assets of the two private bus companies. Included in the acquisition was a 155-vehicle bus fleet with an average age of 13.2 years. Because the Birmingham Transit Corporation did not own its land, garage, or shop facilities, outstanding lease obligations were purchased for the remaining 13 years.

Under private ownership, from 1966 to 1972, the combined ridership of both bus companies had declined from 15 million passengers to less than 9 million passengers. The 1972 ridership was only 57 percent of the 1966 ridership. In the first year of operation under public ownership, ridership remained stable.

The second Capital Grant of $477,197 was awareded in October 1974. It was used by the BJCTA to purchase 10 new air-conditioned transit buses. During this second year of public ownership, ridership continued to remain stable.

The third Capital Grant of $1,340,812 was awarded in May 1975. With it BJCTA purchased 22 new air-conditioned transit buses bringing the current fleet size to 185, with an average bus age of 13.2 years.

The capital expenditures for FY76-FY80 proposed in the Transit Development Program include: 106 transit vehicles, 10 spare units, 200 fareboxes, 50 radios, 16 supervisory automobiles, 50 bus shelters, bus stop signs, office equipment, shop tools and equipment, and fare collection and sorting equipment, totalling $9,310,000.

These capital acquisitions will not be made. The City of Birmingham and municipalities served by the public transit system are experiencing extreme financial difficulties and cannot raise their local matching shares for the Capital Grants. The State Legislature of Alabama has rejected transit legislation to provide appropriations to local governments for local matching shares.

Since 1975 there have no applications for either Section 3 or Section 5 Operating Grants. Even with Section 5 entitlement provisions, it is unlikely that the local matching funds can be raised.

Survival of the transit system in Birmingham has become the primary planning issue for the BJCTA.

New or Improved Services With Existing Facilities

The 1972 Birmingham Transit Study made the following recommendations: eliminate duplication in the route system, reduce the total route miles from 849 to 814 (4 percent), expand routes into the newly developed residential suburban municipalities, create express routes on freeways in the urbanized area, establish a low fare micro-minibus distributor route from the Birmingham division of the University of Alabama to the CBD, expand the charter bus service, reduce the fare zone for long-haul riders, eliminate the exact fare, eliminate service to the low-income areas because they are serviced by the jitney system, reduce fares for elderly citizens, and use a promotional program to improve the image of the transit system.

These recommendations were basically policy statements. The amendments were awarded to the BRPC to evaluate those policies, and to develop an implementation strategy to accomplish those policies.

In 1975 to reduce the growing operational deficits of the transit system, the BJCTA eliminated the duplication of routes, expanded several routes in the suburban communities, increased the basic fare from 35¢ to 40¢, and reduced the fare for senior citizens to 20¢.

In early 1976, businessmen from the Birmingham CBD raised $50,000 for the BJCTA to use as local matching funds to obtain a Capital Grant. The grant would help purchase four mini-buses to provide service from the Birmingham Division of the University of Alabama to the CBD. Their

proposal was acceptable to BJCTA but was rejected when it was presented formally to the regional UMTA office. The regional office thought the project would be unfavorable competition to the public transit system program of providing free fare in the Birmingham CBD.

To help extend the currently limited public transit service to the elderly and handicapped in the City of Birmingham, in 1975 a nonprofit group of citizens, Positive Maturity, Inc., applied for and recieved a tentative approval from the Community Service Administration (HEW) to purchase eight specially equipped vehicles and related equipment. This transit service is expected to be in operation by late 1976.

Institutional Climate

Prior to 1974, the BRPC did not have a citizens committee for transportation planning. In June 1974 as a result of an UMTA planning review, the Executive Committee of the BRPC board established a Citizens Advisory Committee for transportation planning. However, there were only limited provisions for citizen participation in the Birmingham area transportation study and in the initial Technical Study. The primary citizen transit group in Birmingham, Operation New Birmingham, which has led the crusade for improved transit service to the CBD, was highly critical of the two studies because they did not adequately reflect the transit concerns of the minority users and downtown merchants for increased CBD service and lower fares. The Federal Highway Administration agreed and made it a condition for recertification that a formal mechanism for local citizen participation in the transportation planning process be established by the BRPC. The BRPC therefore expanded the Citizens Advisory Committee to 19 members.

Public meetings with local community leadership are being held by the BRPC staff on a regional basis to discuss and review transit issues and priorities. The BRPC also is working with local citizens to recruit them as lobbyists in the state legislature for permanent financing of local transit service.

Blacks are the predominant transit patrons, but their participation is minimal in the citizen organization. Few blacks have attended the public meetings of BRPC on transit issues.

In recent public transit hearings and meetings conducted by BRPC, a citizen organization named "Access Unlimited" has made several presentations in support of increased transit services for the handicapped.

The initial Technical Study Grant indirectly helped disclose the jurisdictional problems related to transit between the BRPC and the City of Birmingham. FWHA decertification of the BRPC forced competing forces to rethink their positions, seek compromises, and work together to obtain more federal funds from a variety of funding sources. Their cooperative efforts resulted in the local press presenting more constructive articles on the transit issues confronting the community, rather than concentrating on the conflict between the BRPC and BJCTA.

The political leadership of the City of Birmingham, as embodied in the Mayor, supports public transit services but has indicated that local governments can no longer provide subsidies because of their growing fiscal crises.

The enlightened transit awareness of local political leadership, businessmen, and citizens has lead the BJCTA and BRPC to work cooperatively in transit planning. Since late 1975 the aforementioned groups have been actively campaigning for permanent state financing to local governments with populations over 100,000.

Conclusions

Transit in Birmingham has been beset by a number of problems. Public acquisition and operation of the transit system in 1972, while providing for continued transit service in the region, have precipitated problems in the coordination of management and planning responsibility between BRPC, the MPO, and the Regional Transit Authority (BJCTA).

There has been some progress in transit planning and management. Citizen involvement in policy formulation has increased recently and became institutionalized. UMTA planning assistance has resulted in a TDP and Capital Grants to replace some of the older bus fleet. Inadequate local matching funds, however, threatens to limit future UMTA Capital Grant requests.

See the summary matrix, Table 7

TABLE 6. BIRMINGHAM - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| AL-09-0005 | BRPC | $75,000 | 1970 |
| AL-09-0005-1 | BRPC | 204,000 | 1974 |
| AL-90-0005-2 | BRPC | 178,000 | 1975 |

# TABLE 7. BIRMINGHAM - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region IV

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 1 | 457K | 1970 |
| Capital, Section 3 | 3 | 3.06M | 1973 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | | | x | | |
| Operational | x | x | | | | | |
| Long Range | x | | | | | | |
| Modelling | | | | | | x | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | | | | | x | Incomplete implementations. |
| Garage/Maintenance | x | | | | x | x | |
| Operational/Other | | | | | | | |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | | | | | | | Non-profit citizens' group providing H&E service. |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | x | | | | x | x | |
| Other | x | | 5 | | x | x | |
| Route Coverage | x | x | | | x | x | |
| Route Scheduling | x | x | | | x | x | |

## 5.4 CEDAR RAPIDS, IOWA

### Demographic Socio-Economic Background

Cedar Rapids is located in east-central Iowa 300 miles southwest of Chicago. The Cedar Rapids SMSA is contiguous with Linn County. The SMSA is characterized by a consistent high population growth. Linn County's 1970 population of 163,213 showed a 19.2 percent increase from 1960. During 1960-1970 Cedar Rapids' population grew by 20.2 percent to 110,642 and the urbanized area's 132,004 residents represented a 25.6 percent increase.

In contrast, Iowa's population increased 2.4 percent. Furthermore, during the 1960-1970 period, SMSA's with a 1960 population less than 200,000 experienced these population increases: SMSA 9.8 percent, urbanized area 12.7 percent, and central city 4.2 percent.

Cedar Rapids' economic base is dependent upon food processing and communications equipment manufacturing, with 40 percent of the SMSA's labor force employed in these industries. Cedar Rapids is headquarters for Collins Radio Corporation, Quaker Oats Cereals, and other food processing plants.

Cedar Rapids is a distinctly prosperous community. The 1970 average annual family income of $12,104 is eleventh highest among the 265 U.S. SMSA's. Only 3.2 percent of families have annual incomes beneath the poverty level. The Cedar Rapids population aged 65 and older is 9.2 percent. While 11.5 percent of these elderly have annual incomes beneath the poverty level, the U.S. average is 20 percent.

### Transportation Characteristics

#### Trip Characteristics

Cedar Rapids has a remarkably road intensive layout, characterized by short trip distances and a grid network of wide urban streets which encourage auto use. Most persons have access to auto travel since 88.4 percent of households own at least one automobile. Also, 59.5 percent of households own two or more automobiles. The average work trip distance in the urbanized area is 1.8 miles and the average shopping trip distance is 1.4 miles. For the U.S. the average work trip distance is 2.4 miles and the average shopping trip distance is 1.7 miles.

A combination of a Linn County requirement that employers provide workers with parking facilities, the presence of two shopping centers within the urbanized area, and an average annual increase of 150 parking spaces in the CBD since 1970, further encourage auto travel.

While Cedar Rapids experienced patronage declines in the 1960's, ridership has increased since new management policies were implemented in the 1970's. Since 1973 the community has experienced consistent patronage increases. 1975 ridership was 1,500,000 persons. Furthermore, patronage is predominantly from middle income families. Among transit riders the average family income is $15,000, 40 percent are aged 25-55 years, while the proportion aged 65 years and older is 20 percent.

It is difficult to adequately explain RTC's ridership trends. An important factor is personalized service. Outside the CBD there are no bus stops. Persons may hail a bus anywhere along the route. Also, drivers will divert up to two blocks from a route's scheduled course for deboarding passengers.

RTC has an informal honor fare system. Drivers generally do not question the amount deposited and persons may deboard without fare payment. The understanding is that the passenger did not have the correct change and will pay later.

All RTC buses are cleaned and washed each day and painted once a year.

Transit History

From 1932-1967 Cedar Rapids' public transportation was provided through a franchise to National City Lines, a private corporation. Bus service operated at a profit until 1960 when NCL experienced a 2 percent deficit (budget $300,000). An increasing deficit occurred each year reaching 18 percent during fiscal 1965. In September, 1966, NCL notified Cedar Rapids that the company would not apply for franchise renewal and planned to cease operations December 31, 1966. Bus service was stopped at that time.

A municipal referendum was held January 15, 1967, addressing whether Cedar Rapids should support a public transportation system. The proposition received a 75 percent voter approval. Bus service was resumed April 15, 1967.

In June, 1967, Cedar Rapids established the Regional Transit Corporation, a private company which operates bus service for Cedar Rapids. Cedar Rapids' mayor and city council appoint RTC's three-member governing board, the Regional Transit Authority. The Authority establishes operating policies and is generally responsible to the city for RTC operations. RTC's ownership is paid 5 percent of the transit systems gross revenues.

Since RTC's incorporation the operating deficit increased to 32 percent in fiscal 1974 (budget $552,000). Due to large ridership increases and implementation of cost savings programs, the annual deficit decreased to 29 percent in fiscal 1975 (budget $648,000), 28 percent in fiscal 1976 (budget $703,000), and is an estimated 26 percent for fiscal 1977 (budget $750,000). The deficit is supported entirely from Cedar Rapids general tax revenues.

RTC has 14 fifty-passenger buses and operates 11 regularly scheduled loop routes. Operating hours are 6:00 a.m. to 8:00 p.m., Monday through Friday. There is no weekend service. Each route has a consistent 30-minute headway. Aside from one dial-a-ride vehicle which began service to the elderly in September, 1974, RTC provides no other transit services. RTC's service district encompasses the urbanized area's approximate dimensions. Included are Cedar Rapids and its one suburb, Marion (population 18,387). An estimated 95 percent of route miles and patronage occur within Cedar Rapids city limits. Marion pays Cedar Rapids $18,000 per year for bus service.

## Transportation Planning Process

### History

The Linn County Regional Planning Commission, established in 1964 is responsible for transportation, land use, and community development planning in Linn County. In 1973, Iowa designated the LCRPC as the authorized agency for all public transportation planning activities. Each of Iowa's counties has a similar regional planning commission.

Currently, the planning and implementation process for public transportation is entirely local. Iowa's state DOT was established July 1, 1975. However, the Iowa legislature has not funded I-DOT's Division of Public Transportation with funds for either staff salaries or operating activities. The Division's purpose is to assist communities in developing need responsive public transportation systems and to provide communities with matching funds when applying for Section 3 Capital and Section 9 Technical Studies

Grants. The Division is not expected to begin operations until at least fiscal 1978.

Iowa does have enabling legislation addressing public transportation. A state law permits incorporated communities to own and operate a public transportation system. Another statute enables communities to accept federal funds for public transportation capital improvements and operating expenses.

### Goals

The LCRPC's principal goal for public transportation planning is to assist Cedar Rapids in providing economical and need responsive public transportation. The planning emphasis is upon developing a public transportation system which minimizes operating deficits and therefore Cedar Rapids' need to support transit with general tax revenue funds. The LCRPC holds that deficits are an integral component of public transportation systems. Since UMTA operating assistance is available to communities with a minimum 50,000 population, the Commission advocates public transportation for Cedar Rapids but discourages transit for other Linn County communities.

### Agencies

The LCRPC had no subdivision dealing with public transportation planning until Cedar Rapids requested the Commission's assistance in applying for a Technical Study Grant in November, 1973. The LCRPC then established the Transit Study Technical Assistance Committee (TSTAC) whose members include RTC's operations manager and assistant manager, members appointed by Cedar Rapids mayor and city council, and non-Cedar Rapids residents appointed by the Linn County commissioners.

Cedar Rapids mayor and city council propose public transportation planning studies and implementation programs to the TSTAC. The Transit Study Committee typically approves proposals which are forwarded to the LCRPC's governing board, the Policy Committee. Each of the county's incorporated towns has one representative plus one additional representative for each increment of 5,000 population. Cedar Rapids has 23 representatives and Marion, four. The remaining towns have one member each. The Linn County commissioners appoint members to represent the county's unincorporated population.

The Policy Committee and Cedar Rapids negotiate planning proposals until a consensus is reached. The

Planning Committee's unanimous approval is required for a proposal's acceptance. The LCRPC applies for all UMTA grants and appoints the city of Cedar Rapids as the administering agency.

While Cedar Rapids must contribute all local share funds for UMTA Capital and Operating Grants, the LCRPC provides local share funds for Technical Studies Grants. The Commission assesses each community and, Linn County, for unincorporated townships, proportional to population. In this manner Linn County and the other communities contribute 32 percent to TSG local share requirements. Through the Policy Committee's decision-making authority and TSG funding structure, communities not served by RTC, but whose residents may use transit when in Cedar Rapids, have input into the public transportation planning process.

### Technical Studies Grants

The LCRPC has applied for and recieved two UMTA Technical Studies Grants. Table 8 describes the purpose, cost, and duration of each grant.

## Transportation Planning and Implementation

Cedar Rapids is currently evaluating the proposed Transit Service Improvement Program which was developed by a contractor. Its recommendations include: capital equipment improvements, more special transit services for the elderly, two new bus routes in Cedar Rapids, a fare-free zone in the CBD, 20-minute headways on all routes during peak hours, and limited bus service between Cedar Rapids and other Linn County communities.

Through the LCRPC, Cedar Rapids has applied for an UMTA Operating Grant and two Capital Grants, one for purchasing 14 new 33-passenger buses to replace the present fleet and the other for renovating bus garage facilities.

## Institutional Climate

Public transportation planning in Cedar Rapids is characterized by goal consensus among the LCRPC, RTC, and Cedar Rapids mayor and city council. Public transportation should accommodate citizens' travel needs while minimizing subsidy support needs. Facilities expansion and service innovations which may increase operating deficits should be avoided.

Cedar Rapids does not anticipate reducing bus headways from the present 30 minutes to 20 minutes since it would require doubling the bus fleet size and thereby increase the deficit. Cedar Rapids does not foresee adding two new bus routes since anticipated low ridership would mean that the transit needs of a few citizens would be served at the tax expense of all citizens.

Conclusions

RTC operations demonstrate remarkable managerial efficiency and attentiveness to passenger comfort and travel needs. With a declining deficit and sharply increasing ridership, RTC is an example of a successful transit operation. Cedar Rapids is strongly committed to maintaining a need responsive public transportation system. Bus need responsiveness is interpreted as maximizing the use of transit facilities while minimizing deficit costs.

Cedar Rapids' institutional climate is characterized by a conservative fiscal approach to transit operations. TIP implementation is feasible when service improvements do not increase the operating deficit and may actually reduce deficit costs. Need responsiveness means serving the transit needs of the community as a whole rather than those of a defined transit dependent population. For Cedar Rapids, implementing special transit services for the youth or elderly is desirable provided that additional deficit costs are not incurred. According to RTC operational policy, serving the transit needs of a few citizens while increasing transit costs to all citizens represents a misguided need responsiveness which actually endangers the quality and stability of public transportation.

See the summary matrix, Table 10.

TABLE 8. CEDAR RAPIDS - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| IA-09-0009 | LCRPC | $46,000 | FY 75 |
| IA-09-0011 | LCRPC | $22,000 | FY 76 |

# TABLE 9. CEDAR RAPIDS - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region VII

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 2 | 68K | 1974 |
| Capital, Section 3 | 2 | 1.8M | Applications pending |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | | S | x | x | | TDP implementation uncertain, other than for capital improvements. |
| Operational | x | | | | | | |
| Long Range | | | | | | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | | x | x | | Pending capital grant application for 17, 33 passenger buses. |
| Garage/Maintenance | x | x | | x | x | | Pending capital grant application to renovate garage/ maintenance facility. |
| Operational/Other | | | | | | | |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | x | | | | x | | Doubtful implementation of handicapped and elderly service. |
| Demand Responsive | x | | | | x | | Pending capital grant application for purchase of three demand responsive vehicles. |
| Management | | | | | | | |
| Marketing | x | x | | | x | | |
| Other | | | | | | | |
| Route Coverage | x | x | | | x | | |
| Route Scheduling | x | | | | x | | |

## 5.5 CHARLOTTESVILLE, VIRGINIA

### Demographic/Socio-Economic Background

Charlottesville is located in central Virginia 120 miles southwest of Washington, D.C. The city is bounded on all sides by Albemarle County. In Virginia cities and counties are geographically and politically separate. Both Charlottesville and Ablemarle County indicate similar population growth. During 1960-1970 the city's population grew 11.4 percent to 38,880. The county's 37,780 residents represent a 13.8 percent increase. Since 1990 each has experienced an average decennial increase of approximately 10 percent. While Charlottesville is not an SMSA, the combined population of the city and county is 81.4 percent urban. Charlottesville has a moderate population density of 3,441 persons per square mile.

Charlottesville is a prosperous community which also has a large transit-dependent population. Approximately 30 percent of families have an annual income greater than $15,000, but an estimated 20 percent of families have an annual income less than $5,000. The city is 16 percent Black; 12 percent of residents are aged 65 and older.

Charlottesville's economic base is dependent upon the University of Virginia, whose main campus having 15,000 students is adjacent to the city. The University's 6,900 non-student employees account for 20 percent of the area's labor force. In addition Morton Frozen Foods, Sperry Marine Systems, and Stromberg Carlson Corporation each employ more than 500 persons.

### Transportation Characteristics

#### Trip Characteristics

Two interstate highways, running north-south and east-west, intersect near Charlottesville's CBD to interphase with a grid network of wide urban streets. The community has short trip distances and lacks traffic congestion. It is estimated that most work and shopping trip distances are less than 3 miles. Approximately 90 percent of families own at least one automobile and approximately 40 percent own two or more. While these characteristics encourage auto travel, Charlottesville has enacted an ordinance prohibiting new CBD parking lots. In 1975 a pedestrial mall was established along 5 blocks of Broad Street, the city's main thoroughfare. The community has a low public transportation use with an estimated modal split is 0.5 percent.

#### Transit History

Public bus transportation began in 1964 when Yellow Transit Company (YTC), a private operator, established 6 bus

routes throughout Charlottesville employing 12 33-passenger vehicles. YTC had been providing ambulance service, airport limousines, bus service for the city school district, and one-third of the local taxi cab service.

Ridership increased from 750,000 passengers in 1965 to 997,000 in 1969. During this period it is estimated that revenues typically exceeded operating expenses at least 10 percent. However, with patronage stabilizing a 7 percent deficit was experienced in 1970 when operating expenses were $220,000 and ridership 1,030,000 passengers.

Because of maintenance problems and related frequent schedule delays, ridership declined to 786,000 passengers in 1972. Operating expenses decreased to $218,000 in 1972. Nevertheless, revenue losses produced an 11 percent deficit.

In 1973 the deficit increased to 25 percent. Operating expenses were $237,000 and revenues $174,000; ridership had declined to 706,000 passengers. YTC petitioned Charlottesville's city council for permission to increase the bus fare from 25 to 30 cents. Concluding that a fare increase would promote continued ridership decline, the council voted to grant YTC a $55,000 subsidy, the estimated value of the additional nickel fare.

Recognizing a need for a stable public transportation system and YTC's mounting financial and operating problems, in 1973 Charlottesville applied for a Section 9 Technical Study Grant to explore options for publicy owned bus service.

On September 1, 1975, the Charlottesville Transit Service (CTS) was established as part of the city's Department of Public Works. The Department's director, who is assigned 10 percent to manage CTS, is responsible to the city council which sets all operating policies and fully subsidizes deficit costs from general tax revenues. Since Charlottesville is not an urbanized area the community is not eligible for Section 5 Operating Grants.

Since Technical Study Grant planning began in 1973, transit ridership has declined 35 percent to 462,000 passengers and annual bus miles traveled have declined 13 percent to 264,000. The current $266,000 budget requires a $139,000, 56 percent, subsidy support.

CTS operates six routes employing four 33-passenger buses and eight 12-passenger mini-buses. Service hours are 6:00 a.m. to 8:00 p.m., Monday through Saturday.

Demand-responsive transit for the handicapped began July 1975 when six Charlottesville social service organizations incorporated Jefferson Area United Transportation (JAUNT). An UMTA Demonstration Grant was

received to purchase seven eight-passenger vehicles. HEW Department of Labor funds from the CETA program pay salaries for seven staff members. When outside funds are no longer available JAUNT will be supported fully by its member agencies. Transit is free to agency clients. Current ridership is 7,000 trips monthly, involving 500 persons.

Although CTS's service district is restricted to the Charlottesville city limits, the University of Virginia operates a private transit system, University Transit (UT), serving the campus and university housing. The school does not permit on-campus parking. Students must patronize UT, walk, or use bicycles. There is no fare since the mandatory student activity fee each semester pays all transit operating costs. Student Identification Cards serve as transit passes. University employees and visitors are transported free from an athletic stadium parking lot. UT operates 4 regularly scheduled routes employing 11 50-passenger vehicles. Annual patronage is approximately 2,000,000 passengers. Except for the location of some University housing in Charlottesville, CTS and UT bus routes do not overlap.

## Transportation Planning Process

### History

The Thomas Jefferson Planning District Commission is responsible for highway and comprehensive planning in eight central Virginia counties and cities including Ablemarle County and Charlottesville. The Commission assesses needs, applies for Federal funds from agencies such as FHWA, HUD, and HEW, and assists communities to implement these programs.

Charlottesville is not an urbanized area. The state designates the city, rather than an area-wide Metropolitan Planning Organization, responsibility for public transportation planning. The Virginia Department of Highways and Transportation (VDHT) provides 85 percent of the local funding share for Section 3 Capital and Section 9 Technical Studies Grants approved by UMTA. However, other than enabling communities to incorporate transit systems and receive federal funds, Virginia has no legislation addressing either transit planning or operations. VDHT has no subdivision dealing with public transportation.

With YTC's quality of service deteriorating, ridership rapidly declining, and deficit costs increasing, Charlottesville concluded that a publicly owned transit system was required. Since participation in the Technical Studies Grants program began in 1973 Charlottesville has had to define processes for conducting transit planning without guidance from an MPO. The city has no previous transit planning experience. In fact public transportation itself, established in 1964, was less than 10 years old.

Goals

Charlottesville's City Council has established three principal goals for public transportation: serve the travel needs of transit dependent persons, provide a competitive modal alternative to the automobile, and preserve the CBD's colonial heritage.

The community's downtown dates from the 1700's. Since the 1960's, urban redevelopment programs have addressed building and street restoration. Municipal ordinances restrict on-street parking and the operations of parking facilities.

It was felt that a publicly operated bus service would improve the quality of transit and achieve these goals. Charlottesville is committed to expanding public transportation despite consistent increases in the CTS operating deficit and ineligibility for UMTA Section 5 Operating Assistance.

Agencies

Charlottesville's city council and Department of Community Development have developed a multi-component process for transit planning. In 1974 council appointed an 18 member Public Transportation Task Force that included representatives from the city government, school board, VDHT, YTC, the Planning District Commission, University students, and minority groups. The Task Force had one year to develop proposals for continuing public transportation. It recommended that Charlottesville acquire YTC's assets, operate a transit system, and apply for UMTA Section 3 Capital Grants to purchase new buses and modernize facilities.

In 1975 the Task Force was replaced by a permanent Public Transportation Commission having a similar membership composition. City Council also established two committees, Policy and Technical, to assist the Commission. The Policy committee, comprising city officials and representatives from transit user groups, proposes planning goals and programs for developing public transportation. The Technical Committee, whose members are primarily urban planners and engineers from the city's Department of Community Development and Department of Public Works, considers the practicality of Policy Committee proposals, indicates funding sources to finance planning needs and capital improvements, and suggests ways to implement planning programs.

The Public Transportation Commission evaluates Policy and Technical Committee recommendations and endorses specific programs that are are then forwarded to city council. Actual decision-making authority resides with City

Council, which is also responsible for transit systems operations. Council applies for and directs implementation of UMTA Grant Programs.

The Public Transportation Commission's membership includes representatives from the Planning District Commission and the Virginia Highway and Transportation Department, since Charlottesville's transit planning is incorporated into the state mandated continuing Charlottesville Area Transportation Study. This report is updated every 3 years. However, these Commission appointments function to inform these agencies about the city's transit planning programs. The Planning District Commission and VDHT have no transit planning responsibility.

Technical Studies Grants

Charlottesville received one Section 9 Technical Study Grant in September 1973 for $45,285. The one-third local share required at that time was supported 85 percent from VDHT funds and 15 percent from Charlottesville general tax revenues. The grant was intended to study various options for establishing a city operated transit system and to prepare a 5-year Transit Development Program. Kimley-Horn Associates of Raleigh, North Carolina, was selected as planning contractor. In March 1975 a final TDP draft was submitted. (See Table 10.)

Transportation Planning and Implementation

Development of Professional Capabilities

Charlottesville has not developed in-house transit planning capabilities. Although staff members from the Department of Community Development and Department of Public Works are members of the Public Transportation Commission and the Policy and Technical Committees, their involvement in the planning process is advisory. The staff members participated in discussions of planning needs.

Charlottesville, during 3 years of participation in the Technical Studies Grants Program, has conducted no planning activities of its own. Except for the consultant-prepared TDP, the city has sponsored no short range planning and has undertaken neither long range nor operational planning.

The Director of the Department of Community Development is the city's chief planner and the Director of the Public Works Department also serves as CTS's manager. Preparing UMTA grant applications is the responsibility of CTS's one administrative employee (who is not a professional planner), the Transit Technician. Besides preparing applications, the Transit Technician counts daily revenues, keeps financial

records, and responds to inquiries about bus schedules and service complaints.

To obtain information about ridership characteristics Charlottesville plans to conduct quarterly on-board ridership surveys beginning in 1977 or 1978. It is expected that this data collection and analysis will be the responsibility of the Transit Technician.

Capital Acquisitions

Recognizing the deteriorated condition of Yellow Transit Company's capital equipment, Charlottesville applied for a Section 3 Capital Grant early in 1975 while negotiations were ongoing for purchase of the private carrier. When Charlottesville Transit Service began operations in September 1975, 4 of YTC's 12 buses were operational. Rather than extensively repair these vehicles, buses were rented from a private company. The Capital Grant for $726,665 was approved October 1975.

Concluding that a bus fleet comprised entirely of 33-passenger vehicles was inefficient for Charlottesville's low transit patronage levels, the city purchased eight 12-passenger minibuses for regular route service. These vehicles began service April 1976. The city recently ordered four new 33-passenger vehicles and a mobile maintenance van to replace the four operable YTC buses. Delivery is expected January 1977. The city plans to purchase two new buses during each of the next 5 years in order to reduce headways from the current 30 to 60 minutes to a uniform 20 minutes. Six new bus routes are also planned. In early 1977 Charlottesville expects to file a Capital Grant Amendment for construction of a new garage/maintenance facility.

The city has focused upon replacing CTS's inherited bus fleet and improving the quality of regular route service. Ridership continues to decline but CTS stated that patronage is stabilizing and at least a 5 percent increase is expected during the next year.

New or Improved Services With Existing Facilities

Charlottesville has either planned or initiated service improvements intended to stabilize patronage and attract new riders. A special summer bus route provides transportation to a popular picnicing and swimming facility. Other recreation routes are planned. CTS has also begun a charter service to destinations within a 50-mile radius of Charlottesville. However, few groups have chartered CTS buses, since the cost is $20.00 per hour.

CTS plans to offer demand-responsive transit for the elderly, but type of service and implementation date are unspecified. A commuter bus service providing round trip

express transportation directly to places of employment is also planned but unspecified.

In 1975 CTS initiated a 20 cent fare for the elderly applicable during all service hours. The regular fare is 25 cents. When public ownership was established in 1975, CTS began a marketing program designed to stimulate public awareness that Charlottesville has a citywide public transportation system operating 14 hours daily Monday through Saturday. The program includes radio and newspaper advertisements, distributing transit schedules, and other promotions including giving charitable organizations free transit passes to use for prizes in fund raising raffles.

## Institutional Climate

Charlottesville is committed to developing a substantially expanded public transportation system. The community recognizes that doubling the number of bus routes, reducing headways, and implementing special services will likely increase costs substantially beyond revenue gains from additional ridership. While the city is ineligible for Section 5 Operating Grants, City Council supports this expansion using general tax revenues, while maintaining a 25 cent base fare.

Since CTS is part of the city's Department of Public Works and Charlottesville is responsible for transit planning, institutional relationships take place within the municipal government framework. Both operators and planners are city employees responsible to City Council which has decision-making authority. Relationships are characterized by goal agreement and close cooperation.

A potential institutional question in Charlottesville is whether to integrate Charlottesville Transit Service and University Transit into a unified regional system. There are substantial problems in achieving a regional public transportation system, since CTS is owned and supported operating within Charlottesville but UT is state owned and supported operating in Ablemarle county which is distinct from the city.

## Conclusions

Charlottesville is characterized by a strong commitment to expanding transit, ready willingness to support deficit costs from tax revenues, and cooperative institutional relationships. The community has planning resources in the Community Development and Public Works Departments.

The city government wants seven new bus routes, commuter bus service, and demand-responsive transit for the elderly. Implementation of these services has yet to be considered. See the summary matrix, Table 11.

TABLE 10. CHARLOTTESVILLE - TECHNICAL STUDY GRANT

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| VA-09-0008 | CITY OF CHARLOTTESVILLE | $45K | 1973 |

# TABLE 11. CHARLOTTESVILLE - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region III

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 1 | 45K | 1973 |
| Capital, Section 3 | 1 | 727K | 1975 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | X | | 5 | X | X | X | Preparing implementation plan for TDP. |
| Operational | | | | | | | |
| Long Range | X | | 15 | X | X | X | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | X | X | | X | | X | 8 12-paasenger mini-buses, 4 33-passenger buses |
| Garage/Maintenance | X | | | X | | X | FY-77 Capital Grant amended to construct facility. |
| Operational/Other | X | | 5 | X | | X | 24 passenger shelters and bus stop signs, 40 benches. |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | X | | | X | | X | Demand-responsive planned, service unspecified. |
| Demand Responsive | | | | | | | |
| Management | X | X | | X | | X | Public ownership established Sept. 1, 1975. |
| Marketing | X | X | | X | | X | 3% of operating budget for marketing. |
| Other | | | | | | | |
| Route Coverage | X | | 5 | X | | X | 7 new routes |
| Route Scheduling | X | | 5 | X | | X | Reduce headways from 60 to 30 minutes. |

## 5.6 CLEVELAND, OHIO

### Demographic/Socio-Economic Background

Cleveland, the largest city in Ohio and the tenth largest in the United States (1970), is on Lake Erie at the mouth of the Cuyahoga River. The Cleveland metropolitan area ranks as the sixth largest manufacturing center in the U.S. The basic industry is steel, and the metropolitan area is a leading manufacturer of many products dependent upon steel -- automobile parts, tracks, aircraft engines, machine tools, industrial fasteners, and household appliances. Cleveland also ranks as a major printing and publishing center and stands high in output of goods as varied as paints, apparel, light bulbs, and hothouse tomatoes.

Almost the whole of Cuyahoga county, of which Cleveland is the seat, has become a continuous urban area. In the past few decades, an increasing number of people with jobs in Greater Cleveland have moved to counties surrounding Cuyahoga County. Also, many industrial firms based in the Cleveland area have built large new plants in these surrounding counties. The residential dispersion away from Cleveland has resulted in a population loss within the city of Cleveland. During the 1960's Cleveland lost 14 percent of its population and this pattern has continued through the 1970's. Along with population dispersion in the Cleveland area has been the spread of the elderly population. During the 1960's the relative proportion of the elderly in Cleveland declined while it gained outside of Cleveland. The Cleveland core apparently is housing less of the elderly while the surrounding areas are housing more.

The population change in Cleveland has also resulted in a gain in the proportion of blacks in the city. In 1960 blacks composed about 34 percent of Cleveland's population, while in 1970 they made up almost 40 percent.

Even though Cleveland has a smaller population, it continues to function as the economic center of the area. Many people continue to hold jobs in Cleveland although they no longer live there. In 1970, for example, approximately 50 percent of the people who worked in Cleveland lived outside of it.

## Transportation Characteristics

### Trip Characteristics

During the 1960's a number of freeways were completed that improved motor travel in and around the Cleveland area. An Inner Belt was completed around the eastern and southern portions of downtown Cleveland and an Outer Belt through the suburbs was partly completed. Although these roads were completed and residential dispersion had occurred in the 1960's, one out of six SMSA residents (16.2 percent) who worked in Cleveland but lived outside of it used public transportation for work trips in 1970. Cleveland residents who worked in Cleveland used transit only a little more -- one out of four of its resident workers (24.3 percent) used public transit. Thus, a comparatively high percentage of the workers who travel to Cleveland use public transit.

In the total Cleveland SMSA, 13.1 percent of the workers used public transit for work trips. This percentage was a little higher than the average for SMSA's of 250,000 population (11.89 percent). Although a fairly high percentage of those who work in Cleveland use transit for work trips, the population losses and car ownership increase have resulted in continuing transit ridership losses -- particularly during the 1960's and early 1970's.

### Transit History

Transit services in the Cleveland area (Cuyahoga County) are presently provided by the newly created Greater Cleveland Regional Transit Authority (GCRTA). This county authority began operating in October 1975, after voters had approved a 1 percent sales tax to support transit in the county in July 1975. Within the GCRTA were absorbed the Shaker Heights Rapid Transit System (a light rail system connecting Cleveland and Shaker Heights) and the Cleveland Transit System (the major operator in the area), and service contracts were obtained with other smaller systems in the county. The city of Cleveland, through the Cleveland Transit System (CTS) Board, had been the major operator of transit in the Cleveland area for over 30 years. But inflation and ridership declines during the 1960's and early 1970's resulted in fare increases and service reductions, and finally took their toll.

CTS was able to hold expenses in line with revenues until 1970, thus fulfilling its break-even obligation established by law under the City Charter and the Mortgage Indenture of 1942. Gross revenue though in 1970 suddenly fell approximately $3 million below gross expenses.

It became evident that CTS would not be able to fulfill its obligation as a farebox-oriented and farebox-governed business and provide transit services to the Cleveland area. Thus, the GCRTA was established in 1975, and a referendum was passed by 71 percent of the voters, approving the tax for the authority.

The GCRTA, at present, includes service in the following forms:

1. Conventional buses, mostly diesel powered, operating fixed route services according to published timetables,

2. Light rail rapid transit, a two-branch service characterized by low platform boarding, with cars run singly or in short trains,

3. Heavy rail rapid transit, a service which runs east of the city of Cleveland to Windermere and west of the CBD to Cleveland-Hopkins Airport, characterized by high platform boarding, with cars run singly or in trains.

## Transportation Planning Process

### History

The regional agency responsible for coordinating transportation planning in the five-county Northeast Ohio area is the Northeast Ohio Areawide Coordinating Agency (NOACA). NOACA through the years has evolved into a metropolitan regional council as defined by HUD; a transportation study in the continuing phase as defined by the Federal Highway Administration (FHWA), through the Ohio Department of Transportation (ODOT), and the Urban Mass Transportation Administration (UMTA); the official metropolitan clearinghouse to review and process federal funding applications under OMB Circular A-95; and the Census Summary Tape Processing Center for housing and population information as defined by the U.S. Bureau of the Census.

NOACA was initiated in 1968 to review and coordinate comprehensive planning for Northeast Ohio, and to involve citizens and local governments in effective planning for their area. In July 1969, NOACA formally merged with the Cleveland Seven County Transportation-Land Use Study (SCOTS). SCOTS had been established in 1964 to fulfill the Federal Aid Highway Act of 1962 and the Urban Mass Transportation Act of 1964, which required the preparation of a comprehensive transportation-land use plan for the seven-county area. In 1974 the Akron area, consisting of

Portage and Summit Counties, was dropped from NOACA by order of the governor and NOACA was designated as the MPO covering the areas of Cuyahoga, Geauga, Lake, Lorain, and Medina Counties.

## Goals

The transportation planning process of NOACA is based on the concept that all transportation facilities must be planned as a part of a coordinated regional system. The transit goals presented here are listed in the 1976 TSM element of the five-county area and also were specified in the FY73 TDP developed by the consultants, Alan M. Voorhees and Associates, Inc.

In order to coordinate transit in the area, the primary objective was to develop a single agency responsible for the coordination and operation of public transit in the area. The specific transit-related objectives were (1) to provide mobility to the transit-dependent population; (2) to improve overall traffic flow and assist in the reduction of air pollution by providing attractive alternatives to auto commuting; (3) to improve transit service to and from older, more highly developed subareas of the five-county area; (4) to improve transit to, from, and within downtown Cleveland and other major activity centers; (5) to maintain at least present levels of service and expand service where needed; and (6) to provide transit at the lowest possible cost with as much federal, state, and local transit subsidies as possible.

## Agencies

Prior to June 1972 NOACA's primary effort had been directed toward long-range mass transit planning. To complement the long-range plan, NOACA developed a short-range improvement plan as a means of designating priority implementation requirements. The short-range plan for the five-county area was put together by NOACA with input from the Transit Operators Councils, composed of the transit operators of the major systems in the area. The operators represented by the Transit Operators Council are the GCRTA, Maple Heights Transit System, Euclid Municipal Transit System, and North Olmsted Municipal Coach. The primary role of NOACA in mass transit planning has been the coordination of transit planning in the area. Through the formation of committees, subcommittees, and other groups, NOACA has fostered this coordination.

Technical Studies Grants

NOACA, between June 1972 and December 1974, was the regional comprehensive coordinator of transportation planning for both the Cleveland and the Akron metropolitan areas at the insistence of UMTA. Accordingly, NOACA received its first UMTA Technical Study Grant during this period for the development of a seven-county Akron-Cleveland area Transit Development Program (TDP). This seven-county TDP was the combination of separate studies conducted in the two-county Akron area and the five-county Cleveland area.

Major areas of transit improvements in the five-county area were outlined in the long-range (10-year) Transit Development Program produced by the initial Technical Study Grant. There were 21 independent uncoordinated transit systems operating in the five-county area. The TDP suggested that an area-wide transit authority be created with its nucleus as the operations of the Cleveland Transit System (CTS) and the Shaker Heights Rapid Transit System (SHRT). Other transit systems operating within the geographic boundaries of this authority could retain their individual identities, but would have to operate under coordination agreements with the authority on fares, routes, schedules, levels of service, etc. This authority would be responsible for coordinating transit in the area and for short-range transit planning.

The routes of the various transit companies overlapped. The TDP suggested the elimination of overlapping routes and exclusive service routes, and coordination of all systems' routes.

There were wide variations from system to system in the fare charged for similar length trips. Also, there were inequities found within systems -- riders were charged differently when traveling the same distance in different directions. The TDP suggested zone or mileage-related fare.

The TDP recommended a transit marketing program designed to locate potential markets, to plan transit for their needs, and to communicate various services offered by the transit system.

Crime had been cited in public hearings as a major deterrent to transit use. Therefore, a security program at bus stops, at rapid transit stations, and on vehicles was recommended, especially in high crime areas.

In 1974 the governor of Ohio designated NOACA as the metropolitan planning organization (MPO) for the Cleveland five-county area only. Therefore, all subsequent UMTA Technical Studies Grants to NOACA have only covered

transportation planning in the Cleveland five-county area. These subsequent grants have been used to outline and update the 5-year Transit Improvement Programs and to fund other continuing transportation planning activities in the five-county area. Table 12 contains a listing of the UMTA Technical Studies Grants NOACA has received to date.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Before Section 9 Technical Study Grants were awarded to NOACA for FY73, the NOACA Transportation Planning Staff consisted of seven persons. FY73 transit planning work was directed by this group but actual research was conducted by consultants. For FY74, less emphasis was placed on consultants as the transportation planning staff of NOACA was enlarged to 16. The transportation planning staff for FY75 continued its increase to 25 as consultant services continued to decline. Heavier emphasis was placed on transportation professionals after UMTA assistance was received. Since the first planning grant, NOACA's transportation staff has increased by almost 250 percent.

### New Capital Acquisitions

Some of the equipment and facility upgrading and replacement, and marketing programs of the TDP have been implemented in the Cleveland area. Two Section 3 Capital Grants have been awarded to finance the replacement of buses, upgrading of the airport rapid transit station, the purchasing of maintenance and equipment, and purchasing of new graphics for bus shelters. (See Table 13 for a summary of the UMTA Section 3 Capital Grants awarded since FY73.)

Although these improvements were outlined in the NOACA planning studies, all of the recommended improvements did not originate with NOACA. NOACA collected short-range plans submitted by the transit companies in the area. The full certification of NOACA in 1973 for its role in coordinating and continuing planning in the region qualified publicly-owned transit systems in the area for the 80 percent UMTA funding for capital improvements rather than the previous 66.7 percent UMTA funding. Thus, federally supported planning resulted in lower costs for localities to finance capital purchases.

The long-range transit planning of NOACA has not yet resulted in major capital improvements. But a rigorous program for future fleet replacement, expansion, and other

capital improvements outlined by the newly created GCRTA will be conducted by the authority.

### New or Improved Services With Existing Facilities

All of the recommendations in the five-county TDP began to be implemented with the creation of the Greater Cleveland Regional Transit Authority (GCRTA). In October 1975 the GCRTA became the major operator of transit in the five-county area after voters in Cuyahoga County approved a 1 percent sales tax to support the authority. CTS and SHRT were united in the GCRTA, and service agreements were made with other transit companies that operated transit services in Cuyahoga County.

GCRTA coordinates transit in the area and has become responsible for short-range transit planning. Written as a part of the original charter, a number of 5-year service guarantees for transit in the county were made by the authority. They included guaranteed minimum levels of service within the City of Cleveland to insure that the number of route miles would not be less than that provided in November 1974; a transit route spacing guide to insure that residents of all areas in the City of Cleveland would not have to walk far to obtain transit services; and a policy headway guide to insure that Cleveland transit users would not have to wait long for services. To meet these service coverage and frequency standards, the authority guaranteed to provide the additional vehicles-miles required on a yearly scheduled basis. The daytime and rush hour frequencies on 83 routes throughout the county have improved significantly. Approximately 58,672 vehicles-miles per week have been added to the previous CTS and SHRT service.

In addition to the priority service coverage and frequency-of-service guarantees, the authority promised to provide service for inadequate crosstown transit and to provide special transit for the elderly and handicapped populations. Beginning on February 22, 1976, two new crosstown routes, and a major crosstown extension, as well as increased frequency on a number of existing lines, were inaugurated. Also, a Community Responsive Transit (CRT) for the handicapped and elderly is presently being developed.

Guarantees dealing with security and marketing are being implemented.

Fare structures have been altered beginning with across-the-board reduction. Fares have been coordinated with the institution of fare zones. The elderly now ride free during the offpeak hours.

NOACA planning was instrumental in creating the GCRTA and the resultant noncapital transit improvements. The plans outlined by NOACA served as a blueprint for transit changes implemented in the five-county area.

## Institutional Climate

The State of Ohio, local officials, and the residents of Cuyahoga County have provided a favorable climate for improving transit in the Cleveland area. The state has shown its support by assisting in the financing of capital improvements for the former Cleveland Transit System (CTS) and by passing legislation for the creation of transit authorities in the state. Local officials in Cuyahoga County have shown their interest by lobbying for favorable laws for the creation of the regional transit authority, and the voters have shown their support by approving a sales tax to support the authority.

Although by law the former CTS operations had to be financed totally from the farebox, capital improvement financing was not so constrained. A portion of the funds needed for the local share of UMTA Capital Grants were provided by the state for the first time in 1974. That year CTS received a total of $560,000 from the state through the Ohio Department of Transportation (ODOT). Recommendations from the FY73 TDP suggesting the establishment of a central transit authority in the Cleveland area were acted on by the state legislators; in June 1974, Senate Bill 544, which allowed a county transit authority to go to the voters for approval of a sales tax to support transit, was passed. This action, which was supported by city, county, and suburban officials in the county, resulted in the creation of the county-wide Greater Cleveland Regional Transit Authority (GCRTA). The passing of a 1 percent sales tax referendum to support the authority in July 1975 climaxed the efforts of all those involved in improving transit in Cuyahoga County.

## Conclusions

It is apparent that the planning process, which includes operator coordination and public involvement, and the institutional environment, which includes the support of state, county, and local officials, have created a positive situation for improving transit in the Cleveland area.

The Northeast Ohio Areawide Coordinating Agency (NOACA) has emerged as the primary instrument for getting the various transit operators to meet and determine collectively how to improve transit in the Cleveland five-county area.

The expertise that these operators has developed has been utilized to outline the steps needed for the creation of a unified and coordinated transit system in the area. Also, since transit was to be designed for the people of the Cleveland area, public input has been sought throughout the planning process. The mixing of the transit operators' coordination and the involvement of the public produced comprehensive, coordinated, and realistic short and long-range plans for transit improvements in the area.

Both Technical Study Grants to NOACA and UMTA requirements for Capital Grants have been instrumental in the development of the transportation plans in the Cleveland area. UMTA planning funds were used to increase the professional transportation planning capabilities of NOACA, and UMTA Technical Study and Capital Grant requirements stimulated the interaction of transit operators.

The planning coordinated by NOACA, furthermore, has directed transit changes in the area. All of the non-capital and capital improvements recommended through this coordination either have been implemented or are in the process of being implemented in the Cleveland area.

The institutional climate in the state and in Cuyahoga County has been responsible for the follow-through of the plans created by NOACA. State and other public officials in Cuyahoga County created the legislation which allowed the 1 percent sales tax to be voted on for the support of the Greater Cleveland Regional Transit Authority (GCTRA) in Cuyahoga County.

The tax approval by the voters of the county has allowed the outlined plans of NOACA to be implemented. NOACA research, in turn, had been instrumental in detailing to the public the need for the tax approval. Thus, the inclusion of the public throughout the planning process has assured the public that a transit system would be designed with them in mind.

Table 14 presents a summary matrix.

TABLE 12. CLEVELAND - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| OH-09-0012 | NOACA | $679,000 | 1972 |
| OH-09-0016 | NOACA | 351,000 | 1973 |
| OH-09-0028 | NOACA | 400,000 | 1975 |

TABLE 13. CLEVELAND - CAPITAL IMPROVEMENT GRANTS

| GRANT NO. | RECEIPENT | AMOUNT | DATE | ITEMS COVERED |
|---|---|---|---|---|
| OH-03-0022 | NOACA | $7,076,000 | 1974 | 160 new a/c buses, support equip., 8 supervisory autos, 1 pole track, rail maintenance equip., 15 autos, new graphics for bus shelters |
| OH-03-0037 | NOACA | 3,396,000 | 1974 | Renovation of airport transit station |

# TABLE 14. CLEVELAND - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region V

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 3 | 1.4M | 1972 |
| Capital, Section[1] 3 | 2 | 10.5M | 1974 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | | 5 | | | x | Short range planning done by regional transit authority. |
| Operational | | | | | | | |
| Long Range | x | | | x | x | x | Original long range planning coordinated by MPO with actual work by consultants with operator assistance. |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | | 5 | x | x | x | |
| Garage/Maintenance | x | | 5 | x | x | x | |
| Operational/Other | | | | | | | |
| Park and Ride | x | | | x | x | x | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | x | | | x | x | x | Community Responsive Transit (CRT) being developed. |
| Demand Responsive | | | | | | | |
| Management | x | x | | x | | | |
| Marketing | x | | 5 | x | x | x | |
| Other | x | | 5 | x | x | x | Coordinating of routes and fares, unification of service, fare reduction. |
| Route Coverage | x | | 5 | x | x | x | |
| Route Scheduling | x | | 5 | x | x | x | |

1. These have been received since Cleveland began to participate in the Technical Studies Program.

## 5.7 COLORADO SPRINGS, COLORADO

### Demographic/Socio-Economic Background

The Colorado Springs Metropolitan Area is located approximately 70 miles south of Denver, in western El Paso County. It is known as a tourism center and resort because of its moderate climate, topographic features, and scenic setting at the base of Pike's Peak and the Front Range of the Rockies. It is also a military center, the home of the U.S. Air Force Academy, the North American Air Defense Command, Ent Air Force Base, and Fort Carson Army base.

The area's principal population centers, Colorado Springs, Manitou Springs, Fountain, Monument, and Palmer Lake, account for over 90 percent of El Paso County residents and 10 percent of the state total. There is little population east of this area, since the land is rural, semiarid, and devoted almost exclusively to agriculture.

Since the mid-1960's the population of the Colorado Springs area has grown at a faster rate than either the state of Colorado or the nation. Growth has in excess of 6 percent since 1960. Colorado Springs, the second largest city in the state, grew 92 percent from 1960 to 1970, reaching a population of 135,017. During this same time period, the entire urbanized area grew 104 percent to 204,766, a rate growth surpassed by only two other urbanized areas in the country. Population growth has continued in the 1970's, but the rate of growth has slowed to 4 percent a year because of natural gas shortages and the lack of significant new industry.

While the urbanized area population increased, its population density decreased from 4400 in 1960 to 2257 in 1970. However, there has not been the typical sprawl associated with this type of growth pattern. Development has generally taken place in a contiguous manner without the appearance of sprawl because of the mixture of high-density residential use and topographic features which constrain development. Slopes in excess of 20 degrees, subsidence, floodways, and rockfall areas act as barriers to development. Recent growth has taken place in the northeast and southeast sectors of the metropolitan area. The mountains to the west, the Air Force Academy to the north, and Fort Carson to the south prevent development in those directions.

Although once the center for mountain mining, the Colorado Springs economic base is almost totally dependent on the military, tourism, and more recently, light manufacturing. Military installations and their support facilities have dominated the local economy since 1951 and represent the major employer. While tourism has been and

remains a dominant feature of the economy, in recent years several light manufacturing firms, such as Hewlett Packard, Philco Ford, TRW Electronics, and Holly Sugar, have located in the area.

## Transportation Characteristics

### Trip Characteristics

Colorado Springs is one of the most auto-dependent communities in the nation. In 1970 92.2 percent of all households in the urban area owned at least one automobile. Fewer than 1 percent of all 1976 trips were made by transit.

Many factors contribute to Colorado Springs' heavy reliance on the automobile. There are no major employers in Colorado Springs, nor is there any appreciable concentration of employers. Workplace destinations are scattered, and concentrations are of relatively low density. Even where there is a concentration of trip purposes, such as the CBD (75,000 daily person trips), auto use is encouraged by wide streets, little congestion, and a parking supply commensurate with demand.

Negative community attitudes have also contributed to low transit ridership. Many residents of the area, migrants from larger urban centers and accustomed to congestion, pollution, and parking problems, are biased against transit use. In a 1971 community survey 64 percent of residents indicated they would not use the bus system no matter what improvements were made. Thus the transit system primarily serves the area's transit-dependent population. A 1975 bus survey revealed that 41 percent of riders did not own a car; 79 percent did not have a car available for their trip by transit; and over 52 percent did not have a driver's license. (Only 15 percent of the system's riders are considered "choice.")

Transit trips are oriented to the central city. Although travel to communities outside the city is possible, it is either difficult or inconvenient. Fifty percent of all transit destinations are the CBD. Trip purposes are predominantly for work and school, accounting for 68 percent of all transit trips. The heaviest demand occurs in the morning and evening peak hours of 7 to 8 a.m. and 3 to 4 p.m. Midday ridership accounts for only 38 percent of all passenger trips; less than 8 percent of the system's ridership occurs after 5 p.m.

### Transit History

Prior to 1972, transit service in Colorado Springs was provided by the Colorado Springs Coach Company (CSCC). CSCC

experienced substantial losses in revenue riders beginning in the mid-1950's. From a ridership of 5.2 million in 1956, the number of revenue passengers declined to 1.0 million in 1970 and to a low of approximately 550,000 in 1972, a loss of 85 percent.

The losses were attributed to service cutbacks, an old bus fleet, and a fare structure 50 percent higher than most systems.

In 1968, CSCC began deficit operations and accumulated losses in excess of $100,000 by mid-1971. In January 1971, realizing that it would no longer be possible to run a profitable service, CSCC served notice to the city of its intent to end all transit service. Faced with the prospect of subsidizing the private operator or having to do without any transit service, the city agreed to provide CSCC $28,000 to cover their operating losses through December 31, 1971. Subsequently, this agreement was extended monthly until the city decided upon a solution to the transit crisis.

In 1972 the city decided to discontinue their subsidy of CSCC and instead provide a public transit service. An agreement with the private operator was reached that did not oblige the city to buy the tangible assets of CSCC. Under this agreement, however, the drivers and most of the operating personnel were retained. The real estate and building of the private operator were also leased to the city until 1975. Due to the age and poor condition of the CSCC fleet, the city purchased 18 buses from Tampa, Florida (12 used 45-passenger buses) and Waterloo, Iowa (6 used 35-passenger buses).

In order to plan and implement the new service, the city entered into an agreement with Colorado Transit Management, Inc., (CTM) a subsidiary of National City Management. Under a 5-year contract, CTM agreed to manage the city transit system for an annual fee of $35,000 for the first year, which was to be increased 5 percent each year to a maximum of $42,525. As part of the contract, CTM agreed to provide a resident manager and various consulting services. Other expenditures associated with the new operation, however, were to be funded through subsidy from the general fund of Colorado Springs.

The new Colorado Springs Transit System (CSTS) officially began operation on September 16, 1972. Although at the outset the route structure and service characteristics resembled the old CSCC operation, many service and capital improvements have since been made. Headways have been reduced from 60 to 30 minutes, numerous route modifications have been made, and some new routes have been added. Bus miles in operation have increased nearly 200 percent, and revenue riders have increased over 100 percent.

Currently, the Colorado Springs Transit System (CSTS) has a fleet of 28 buses. Service is provided on 11 routes, 10 of which operate in a radial fashion on fixed routes; most terminate in the CBD. Service hours are from 5:45 a.m. to 1:05 a.m. on weekdays, with individual hours of operation for each route dependent on demand. Although regular service is provided on Saturday, there is no Sunday or holiday service except to Fort Carson and the Air Force Academy. Fare is a flat 35¢ with no zone or transfer charges.

## Transportation Planning Process

### History

Prior to 1963 no comprehensive transportation planning took place in the Colorado Springs metropolitan area. The only major transportation study undertaken before this date was a traffic thoroughfare plan completed in October 1956 by Wilbur Smith and Associates. This plan was focused on the improvement of the street and road system, which was judged inadequate to handle increased travel demands caused by the area's growing population. Although this plan was never formally adopted by the City Council, it was used for general planning purposes and updated in 1963, 1964, and 1969.

Comprehensive transportation planning was initiated in June 1963 with the creation of the Colorado Springs Metropolitan Area Transportation Study (CSMATS). As in most other cities throughout the country, the impetus behind CSMATS was the Federal Highway Act of 1962, which required a "3-C" transportation planning process in urban areas in order to maintain eligibility for federal highway funds. Responding to this directive, a Memorandum of Agreement (MOA) to initiate CSMATS was signed between the Colorado Division of Highways (CDH), the El Paso County Board of Supervisors, and the cities of Colorado Springs and Manitou Springs.

Responsibility for management and conduct of CSMATS was transferred to the Pike's Peak Area Council of Governments (PPACOG) following its creation in June 1967. CSMATS purpose was to develop a long-range comprehensive transportation plan for the Colorado Springs urbanized area. The study was to determine street and highway system improvements needed to accommodate future travel demands. Information regarding regional development, land use, zoning, population growth, and other factors necessary to predict future travel demands was analyzed. During the course of the study (1963-1971) PPACOG staff, in cooperation with several committess of technical staff and local citizens, tested and evaluated over 20 alternative transportation systems.

On September 8, 1971, PPACOG formally presented and adopted 1 of the 20 alternative transportation systems tested and evaluated in their final report, entitled "CSMATS 1990." Member jurisdictions were asked to adopt this plan individually as a functional segment of their master plans. Public hearings on the plan were held by the City and County Planning Commissions. Considerable opposition to the plan developed about the method and rate growth forecast for the region, based on the feeling that the plan called for too much growth. Dissatisfaction was also expressed with the emphasis placed on street and highway improvments instead of the public transit system.

Because of citizen dissatisfaction, all PPACOG member jurisdictions refused to adopt the 1990 plan. PPACOG was requested to prepare an extensive plan modification incorporating the suggestions made in public meetings. Because of the strong concern for transit and the impending transit crisis, transit improvements were given priority. Subsequently PPACOG retained the services of Barton-Aschman Associates, who prepared an immediate and a long-range transit plan. Pursuant to the recommendations in this plan, the city assumed ownership of the bus operation in September 1972.

In 1973, with the advent of a new city administration, a four-step plan was devised to re-evaluate the long-range plan. This first stage, a re-evaluation of goals, was completed in 1973. Secondly, a sketch plan was prepared during 1973-1974 which evaluated several concepts for regional development based on goals established in stage one. During the 1974-1975 fiscal year, alternative regional development policies were evaluated. This led to the selection of a satellite-cities concept for the region calling for Colorado Springs to retain its dominance as an employment and service center, while allowing the other communities in the metropolitan area to maintain their identity.

The last stage of the plan re-evaluation process is an ongoing activity of the planning program. It involves fitting the transportation plan to demand created by the desired regional development plan.

Goals

Transportation goals in Colorado Springs are a subset of regional development policies and are closely linked to the issue of growth. These goals and policies were drawn up by the PPACOG and CDH as part of the plan re-evaluation process in 1973 and are presented in the 1975 TDP. Although these goals express a concern for developing a transit system that will serve all population segments, the emphasis is on the role that transit can play in encouraging future growth and employment opportunities in Colorado Springs.

Specific goals call for a transit service that will enhance the attractiveness of Colorado Springs to tourists and industry, extend the labor market and increase job opportunities, and attract new businesses to the region.

Informally, it is the goals and policies of the resident transit manager and DPW officials which influence the provision of public transit service in Colorado Springs. These goals focus on:

(1) Making the public aware of the transit system

(2) Re-establishing a favorable image of transit

(3) Providing a reliable transit service

(4) Incrementally increasing the size and services of the transit system in accordance with demand and the public's willingness to support a subsidy operation.

The goals of the transit operating personnel are based on the philosophy that since it took 10 years for the private system to decline, it will take at least 10 years for the present system to re-capture lost ridership. It is felt that the first task is to make the public aware of the new system and its improvements by increasing visibility of the system through an active marketing campaign. Reliability is viewed as the most important goal by DPW officials because of the belief that "if the public can't trust the buses, they won't ride them." Overall, the goal of the operator is to "go slow"; management hopes that there is no large increase in ridership overnight. The system hopes to capture permanent riders and does not encourage brief ridership increases caused by exogenous factors such as the energy crisis.

An important component of the overall (PPACOG and DPW) goal structure is the shared belief that a high level of transit sevice can be obtained through increased public subsidy. Community planners are of the opinion that buses will never again run full, and "even if they did, the system would only be close to breaking even." It is believed that adequate transit service must be provided in spite of the amount of subsidy involved. Costs of the system are viewed like the costs of other municipal services.

Agencies

The Pike's Peak Area Council of Governments (PPACOG) is the designated Metropolitan Planning Organization (MPO) for the Colorado Springs urbanized area. It also serves as the areawide A-95 review agency and the HUD-701 comprehensive planning agency. Created in June 1967, PPACOG is responsible for regionwide comprehensive planning in a

three-county (Teller, Park, and El Paso) study area that corresponds to the Colorado Springs SMSA. Transportation planning activity, however, is restricted to a much smaller geographic area, which includes the cities of Colorado Springs and Manitou Springs, urbanized portions of El Paso County, and that region expected to be developed within the next 25 years.

Prior to 1968, transportation planning activity was the responsibility of an ad hoc organization consisting of the Colorado Division of Highways, the El Paso County Board of Supervisors, and the cities of Colorado Springs and Manitou Springs. On April 10, 1968, primary responsibility for transportation planning was transferred to PPACOG, which agreed to accept CSMATS into its jurisdiction and continue the planning process for the Pike's Peak Region. This function was later formalized by means of a Memorandum of Agreement between CDH and PPACOG on March 8, 1972.

The original agreement was subsequently replaced twice in 1972 and 1973 in order to further define the study area and clarify agency responsibilities and authority. The last agreement, signed on October 22, 1973, re-affirmed the earlier organizational arrangements and incorporated changes in the planning process to reflect a new State Action Plan. This plan required comprehensive transportation planning in non-urbanized areas and a more systematic analysis of social and environmental impacts of transportation.

Transfer of transportation planning to PPACOG expanded the participants in the planning process. From one county and two cities in 1963, the PPACOG planning jurisdiction expanded to include three counties and nine municipalities by 1976. Participating agencies now include the Colorado Division of Highways, City and County Planning Departments, and the transit operator. In June 1976, however, all three counties withdrew from the PPACOG.

Within PPACOG, coordination of agencies and jurisdictions is accomplished by three main committees. A Policy Coordinating Committee, consisting of locally elected officials and representatives from CDH, is responsible for reviewing all matters pertaining to transportation planning and facilities. A Technical Committee, which includes staff representatives from local, state, and federal agencies, assists the policy committee on specific project proposals. Finally, a Citizen Advisory Committee (CAC) has been set up and intermittently acts as a liaison between PPACOG and the general public.

Technical Studies Grants

To date the Pike's Peak Area Council of Governments (PPACOG) has been the recipient of three technical studies

grants totalling $211,000. The cost, recipient, and date of award for all three grants is shown in Table 15.

The initial planning grant (CO-09-0006), awarded in 1972, was used to produce a Transit Development Program (TDP). The primary purpose of the TDP was to develop a plan of action in order to preserve the public transportation system. The current and past operations of the Colorado Springs Coach Company were analyzed, including their financial status, maintenance facilities, equipment requirements, and bus routes. A secondary purpose was to examine long-range transit needs for the time period 1975-1990. Overall, a 5-year program of specific improvements was recommended. Based on this grant, the city acquired ownership of the transit system and applied for and received a capital grant (CO-03-0005) for the purchase of buses, a new garage, and collateral equipment.

The second technical studies grant was awarded to support the transit-related elements of the plan-revision process begun in 1973. Funds were provided for the definition and evaluation of alternative regional development forms and associated transportation systems. This grant also funded a complete update of the 1972 TDP, which was completed by the consulting firm of Wilbur Smith and Associates in November 1975.

The current technical studies grant (CO-09-0012) was awarded during the same fiscal year as the earlier grant (CO-09-0009); consequently, most of the work activity for these two grants has taken place concurrently. The primary purpose of grant CO-09-0012 was to assist in the long-range transportation and transit planning elements of the third phase of the overall plan-revision process. Specifically, it provided funds for the start of transportation planning activity consistant with the regional development form selected.

An amendment to grant CO-09-0012 was awarded in May 1975 in order to support long-range, continuing, and short-range transit-planning activity described in the Unified Work Program. Specific work items of this grant include an update of origin-destination data, refinement of travel-forecasting modelling techniques, and socio-economic and environmental analysis. Other activities supported include preparation of the area's first Transportation Improvement Program, development of an energy conservation and air quality maintenance program, and continued routine surveillance and review.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Development of Technical Studies Grants have not resulted in an appreciable increase in the number of local planning staff. However, the grants have played an important role in increasing professional planning capability.

Prior to 1972 there was one full-time transportation/land use planner at PPACOG, one administrator/planner at the city Department of Public Works (DPW), and no formal planning staff at CSCC. Today PPACOG still employs only one full-time transportation planner; DPW has increased its staff only recently to include a "transit specialist"; and the transit system is still under the direction of one administrator/planner. Although various part-time support personnel for planning are available at these agencies, the basic planning staff has remained the same.

In part, the local planning staff has remained small because of the relatively small size of the transit system (about 1/2 the size of transit systems in cities of similar size) and the desire on the part of the city council to provide transit in as economical a way as possible.

Historically, the use of consultants (funded by planning grants) has had a significant impact on planning capability. They allowed an immediate investigation of transit operating needs (1972) that were ignored in the previously prepared CSMATS plan. For the first time, consultants conducted a thorough investigation of the private operator's present operation, including financial status, maintenance facilities, equipment requirements, and bus routes. Alternative ownership and management alternatives and financing mechanisms for transit were also explored. Upon completion of this study in February 1972, the consultants had accomplished a plan to preserve and improve public transit in Colorado Springs.

One immediate effect of the consultants' recommendations was the transition of the bus operation into a public system. When ownership transferred to the city in 1972, however, the city realized that it did not have the professional capability to run the system. Consequently, one of the alternatives discussed in the 1972 consultants' report, the hiring of a management consultant firm, was initiated. The hiring of the Colorado Transit Management Company at once gave the city an experienced and highly capable resident/administrator/planner for the transit system. Under the terms of a 5-year contract signed in 1972, CTM also provides the city with associated consultant services from their home base in Houston.

The hiring of a resident manager significantly increased the area's transit planning capability. The resident manager is well-versed in operational planning and draws on expertise available in the home office in Houston for special problems. Together with DPW, the resident manager has taken the lead role in all short-range/operational planning necessary for the transit system. Although for the first few years the resident manager served as planner, administrator, scheduler, dispatcher, and market researcher, personnel have now been hired in the areas of dispatching, marketing, and street supervision.

The resident manager works closely with the administrator and transit specialist at the DPW. These three individuals act jointly and share the responsibility for transit. Most operational planning is done by the resident manager; the transit specialist has taken the lead role in preparing Section 3 and Section 5 grant applications.

Although PPACOG planners are involved in short-range planning (e.g., coordination of yearly TIP preparation), their main responsibility is in the area of long-range and policy planning. No corridor or subregional studies are performed. Most of their time is spent on modelling activities. They have been active in writing their own trip distribution models and applying the PLUM model, which they borrowed from San Diego. Currently, the bulk of the planning effort at PPACOG, which it expects to complete within the next 1-1/2 years, is aimed at redefining the models.

Planning emphasis at PPACOG is also related to the issue of land use and growth patterns. PPACOG has played an important role in generating alternative growth rates and regional development forms for the region. In part, this has been possible becuase of the availability of comprehensive (HUD-701) planners at PPACOG, who are mainly involved in HUD-701 comprehensive planning.

In the future, it is expected that short-range planning will be emphasized more, since the long-range plan revision is nearly complete and only routine surveillance and maintenance activity will center on the preparation of the yearly Transportation Improvement Program, which will be done in-house as a joint effort of CTM, DPW, and PPACOG. However, consultants will continue to be hired for major updates of short-range planning such as the 1975 TDP.

## 4.2 New Capital Acquisitions

Historically, the lack of operating and fixed capital of the bus system prevented adequate provision of transit service. This situation adversely affected the private operator (CSCC) and the public transit system immediately after its transition to city ownership. Technical Studies

Grants, through TDP's produced in 1972 and 1975, have played an important role in inventorying and identifying new capital needs necessary for the upgrading of service levels.

In the 15 years preceding the public takeover of the transit system, no new capital equipment was purchased. By September 1972 the CSCC bus fleet was old, dirty, and unreliable. The average age of the buses was 21 years, with an average of 608,940 miles per bus. Fleet size diminished to 21. Only one bus was still being manufactured by a current bus manufacturer. Eleven inactive buses had to be retained as a source of spare parts.

Other capital equipment had also deteriorated. The bus garage was old, obsolete, and inadequate for storage. All buses had to be parked outside at night. The bus washer was located outside, thus precluding the possibility of cleaning buses during the winter months. Fareboxes were old and non-registering. There were neither bus stop signs, shelters, nor adequate transferring facilities.

The deteriorating and inadequate state of CSCC's capital equipment was documented in a 1972 TDP. In order to preserve the transit system, the TDP recommended an intensive 1-year program of capital improvements. A completely new bus fleet was recommended along with collateral equipment such as bus stop signs, shelters, registering fareboxes, two-way radios, and a CBD transfer facility. These recommendations amounted to the capital needs of a completely new transit system.

Based on the 1972 TDP an UMTA Capital Assistance Grant application was filed. Two years passed before the grant was approved. Meanwhile, because of the quick decision by the city to take over the transit system, a letter of "no prejudice" was filed by UMTA in order to allow the city to purchase up to 20 used buses.

Until the capital grant was received, the city leased the CSCC's garage facilities, which it shared with two other operators. Management of the system was run out of one room; the maintenance problems of the CSCC remained. In addition, bus stop signs or related equipment needed for proper operation were lacking.

The city's first capital grant was approved in April 1974. All capital equipment, including 14 new buses and a completely new garage/office and maintenance facility, was received by March 1975. The capital equipment (costing $2 million) included the following major items:

14 new 45-passenger buses

25 sub shelters

1500 bus stop signs

28 two-way radios

30 registering fareboxes

a garage office and maintenance facility

a bus washer and cleaner

The receipt of this capital equipment has had a significant impact on both the image of the transit system and the implementation of operational improvements. With the receipt of the 14 new buses in February 1975, the city initiated its first marketing campaign by parading the buses through its downtown streets. Placement of bus stop signs and shelters increased the visibility of the transit system and, for the first time, marked the location of bus stops. Perhaps the most important capital acquisition was the garage facility, which provides heated indoor space for the entire fleet along with maintenance area and office facilities. The building of this facility was the start of a new preventive maintenance program and led to the renovation of older buses presently in the fleet.

The new buses allowed the city to increase its peak service from 15 to 25 buses. On most routes, headways were reduced from 1 hour to 30 minutes. New buses were also used to establish new service in areas of new residential subdivisions or in areas which previously had only limited service.

Additional capital equipment has been acquired without the assistance of UMTA capital grants. Acquisitions include an information center and a centralized CBD bus terminal to replace the old transfer operation, which was formerly accommodated at several curbside locations. The city has also recently invested in a parking garage, the ground floor of which, when completed, will be used as a central transfer terminal to allow interfacing of CTS buses with other intercity carriers.

The 1975 TDP identified future capital needs of CSTS. If fully implemented, the program calls for the expansion of the bus fleet to 50 by 1980; a substantial increase in the number of bus shelters; construction of 30 traffic turnouts by 1980; and purchases including shop equipment.

Currently, a section 3 (capital) grant is being prepared. The grant application requests that UMTA support the acquisition of 3 buses, 4 fareboxes, 4 radios, and 10 shelters. Although buses for fleet expansion were originally planned, this acquisition is being deferred until a new crosstown route is initiated requiring additional vehicles.

## New or Improved Services With Existing Facilities

When the city took over ownership of the transit system in September 1972, it inherited a system in which service levels were below standard. Faced with severe economic losses because of declining ridership, CSCC had cut back its routes, increased headways, and raised fares. The system was also characterized by unreliable schedules and no marketing program or special services. A lack of capital equipment such as shelters, bus stop signs, and two-way radios also contributed to poor service.

Many of the deficiencies in the basic service level have been remedied within the last 4 years. Improvements were spurred by a number of agents including the resident transit manager, DPW personnel, and input from various community groups. Short-range planning, funded under the coordinated support item of planning grants in 1972 and 1975, has also been instrumental in upgrading the service level.

To date, most of the recommendations in the 1972 TDP have been implemented. Some improvements cited in the 1975 TDP have also been implemented, others abandoned, and still others are under consideration. The changes are aimed at developing a high quality service level based on industry guidelines. Although basic, the full impact of the improved service level becomes apparent when compared to specifics of the CSCC service level that preceded it. The changes made thus far include improvements in route alignment, headways, schedules, fares, marketing, and new services.

### Route Alignment

For the first 6 months of its operation, CSTS ran the same basic routes as the private operator. These consisted of eight routes, with one excessively long, irregular route serving over half of the total service area population. Overall, the route structure placed less than 80 percent of the metropolitan area population within 1/2-mile of a route.

In June 1973, CSTS changed every route in the system. Further route refinement took place in January 1974 and March 1975. Based on these changes the city bus system expanded from 8 to 11 routes; the service area population increased from 85,000 to 150,000; new residential areas were being served for the first time; and service to elderly and handicapped social service provided improved.

Two new routes and five route modifications suggested in the 1975 TDP have still not been implemented. All five route modifications depend on implementation of a crosstown route (Academy) designed to provide north-south service on the east side of the city and to provide transfer points to seven of the existing routes, obviating the need to ride

into the CBD to travel crosstown. The decision to implement the crosstown route has not been made since it is uncertain if there is sufficient demand. This service was previously provided in 1972 but dropped because of lack of use.

Special Routes

Pursuant to recommendations of the 1975 TDP, two new services were implemented: (1) a free-fare CBD circulator system designed to increase downtown business and (2) an informal park-and-ride service (using existing shopping center lots) with express bus service during peak hours. Despite the free fare inducement and much advertising, the CBD service was discontinued after a 45-day trial because of low ridership. Although the express bus service continues to operate, ridership is low; 45-passenger buses average fewer than 10 riders per round trip.

Headways

Prior to March 31, 1975, headways on all routes, except for three during peak hour and two midday, were 60 minutes. Headways on all routes were changed to 30 minutes in 1975 because of the addition of 14 new buses through an UMTA Capital Grant. The new buses allowed each route to double service by running two buses on each route instead on one, increasing bus miles operated from 75,000 to 120,000 per month.

Schedules

Prior to 1972, CSCC schedules were unreliable because of frequent breakdowns resulting from lack of a preventive maintenance program. There were no schedule checks.

Schedule reliability has become one of the most important concerns of the new city system. Street supervisors are constantly on the road to keep abreast of breakdowns and monitor schedule adherence. Buses now run within ±2 minutes of posted times. Scheduling changes are announced well in advance and advertised in all media.

Another important component of scheduling has been the introduction of timed transfers at the downtown CBD terminal. When the city took over the system, transfers took place at several curbside locations. Lack of schedule coordination caused missing transfers; this was crucial since the next bus would not arrive for another 60 minutes. An off-the-street transfer facility is now maintained and buses are scheduled so that there is a layover time of 5 minutes at the terminal. Five buses are scheduled to arrive at this terminal on the half hour, and in order to ensure that passengers will make their connections, they do not leave until all five have arrived.

## Fare

When compared with nine other cities of similar size in 1972, the fare charged by CSCC was 50 percent higher than average. A fare reduction to 15¢ recommended by the 1972 TDP was never put into effect. However, under city ownership fares have not risen in 4 years. Fares for senior citizens were reduced to 20¢ in July 1974, mid-day only, and further reduced to 15¢, good for all hours, in March 1975.

## Elderly and Handicapped

A separate study of the needs of the elderly and handicapped was funded by the 1975 planning grant to recommend a system for both ambulatory and nonambulatory elderly and handicapped residents. A two-part program was recommended that would provide (1) transportation service for ambulatory elderly from point of origin to the nearest bus stop and (2) door-to-door service for semi-ambulatory elderly and handicapped within designated service areas. This program has not yet been implemented.

In the meantime, CSTS has helped social service agencies in acquiring vans under UMTA's 16-B-2 program. An elder's shopper special has also been implemented as a one-day (Friday) transit service that operates on a limited fixed-route basis. It makes three stops at senior citizen centers and then one stop at a local shopping center. The fare for this service, as for other transit, is 15¢ per trip.

## Marketing

The private transit operator did not employ marketing personnel nor did it devote any of its operating budget to a marketing program. Likewise, the city system did not employ marketing personnel initially because of a belief that with old, dirty, and unreliable buses, there was little to market.

Based on the recommendation of the 1972 TDP, a marketing department was created and an advertising campaign begun. The marketing program has developed a logo, adopted a color scheme for the buses and equipment, and is preparing new schedules and route maps. An information center at the CBD transfer facility has also been established. There has been an extensive advertising campaign, featuring monthly ads placed in local newspapers that focus on the benefits of using the transit system. This marketing program is aimed at increasing the use of the transit system by non-transit-dependent community residents.

New Services

In conjunction with the marketing program, a number of special services are provided by CSTS. A selection of these special services include the following:

Ride 'N' Shop: Shoppers who go downtown on a bus are offered a free ride home. Merchants reimburse CTS at the rate of 25¢ per passenger.

Mental Retardation Commission (MCR) Program: Mentally retarded people were trained to use the regular transit system. MRC pays the fare, which is the same as the 20¢ reduced fare for the handicapped.

Comprehensive Employment and Training Act: Transportation is provided for applicants and participants in the CETA Program. The CETA Administration compensates CSTS full fare for each trip. It has been in effect since 1974.

School District #11 Transportation Project: Students are issued limited use passes good between Russell Jr. High and Village Seven residential area only. A student fare of 25¢, paid by the school district on a monthly basis, is offered by CSTS.

Institutional Climate

Since the receipt of the first planning grant in 1972, a substantial turnabout in community attitudes toward transit has been achieved. When the city began operating the system in September 1972, most residents had a negative image of the transit system. Riders and nonriders complained of old, dirty, unreliable buses. Sixty-four percent of all residents surveyed indicated they would not use the bus system no matter what improvements were made to it.

By 1975, however, a survey of community residents by the League of Women Voters revealed that most of the residents now held a favorable image of transit. Buses were thought of as clean, comfortable, safe, and convenient. Although transit trips still accounted for only a small proportion of all trips, bus ridership had increased from 550,000 in 1972 to 1.2 million in 1975.

Institutionally, the most important factor affecting the change in community attitudes was the transition of the bus system from private to public ownership. While municipal ownership has resulted in improved service and attitudes, it has also impacted the nature of the planning process and planning outcomes.

Although the City Council has continued to support the transit system, there is still some doubt about the amount

of future funding. The Council, uncertain about future funding committments from UMTA, faces an increasing transit deficit which will reach over $1 million in 1977. Partly because of funding uncertainties, the City Council is expected to ask the outlying communities to reimburse them for the cost of transit to these areas. Even if these communities refuse to pay their fair share, however, the City is expected to continue transit service to these areas, since it is required to provide a metropolitan transit service in order to maintain eligibility for Section 3 and Section 5 funds.

Conclusions

Transit planning funds have been instrumental in helping Colorado Springs to preserve, upgrade, and expand public transit service and facilities. They have also contributed to the community's effort to revise its long-range transportation plan and to decide on an appropriate growth rate and development form.

Much of the remarkable success of the transit system to date may be traced to two factors: (1) the decision to employ professional contract management firm and (2) an extensive use of low capital intensive improvements. Contract management has provided the city with operational planning expertise that was not available on the local level. It has also been a critical force in the generation and implementation of low capital intensive ideas needed to upgrade transit service. The majority of service improvements and approximately 75 percent of CSTS's ridership increases occurred prior to the receipt of new buses in 1975.

While expanding its service level, Colorado Springs transit system has demonstrated remarkable financial stability. Despite a 200 percent increase in bus mileage operated (1972-1976), the operating cost per bus mile has remained fixed at 90¢; similarly, revenue per bus mile operated has remained unchanged at 30¢. This stability has been achieved without raising the basic adult fare and in spite of a reduced (1/2) fare for the elderly and handicapped since 1974.

A summary matix appears as Table 16.

TABLE 15. COLORADO SPRINGS - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| CO-09-0006 | PPACOG | $34,500 | 1972 |
| CO-09-0009 | PPACOG | 56,000 | 1974 |
| CO-09-0012 | PPACOG | 120,500 | 1974 |

# TABLE 16. COLORADO SPRINGS - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region VIII

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 3 | 211K | 1972 |
| Capital, Section 3 | 1 | 2.1M | 1975 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | X | X | 5 | | X | X | Operators carry out bulk of planning. |
| Operational | X | X | | | X | X | Management consulting firm, DPW, and residents recommend changes. |
| Long Range | X | | 20 | X | X | | Lack of integration with short range plans; subject to political changes. |
| Modelling | X | | | X | | | MPO adapting San Diego's Urban Development Model |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | X | X | 5 | | X | X | New buses used to cut headways in half; no mini-buses. |
| Garage/Maintenance | X | X | | | X | X | Preventive maintenance program; first indoor heated space for entire fleet. |
| Operational/Other | X | X | 5 | | X | X | Area's first bus stop signs; shelters; TOPICS improvements |
| Park and Ride | | | | | | | Informal park & ride program using shopping center parking lots. |
| **Service Improvements** | | | | | | | |
| Special Services | X | X | | | X | X | Free-fare CBO shuttle distributor failed due to lack of ridership. |
| Handicapped & Elderly | X | X | | | X | X | Special one day "Elder Shoppers' Special" implemented; Dial-A-Ride service in limbo. |
| Demand Responsive | X | | | | X | X | Implementation delayed due to controversy over consultant's projected demand. |
| Management | | | | | | | None acheduled; profeaaional management firm runs the transit ayatem. |
| Marketing | X | X | | | X | X | One part time employee; new information center; monthly advertising. |
| Other | X | X | | | | X | 1/2 fare for elderly all day; special routes to Air Force Academy and Ft. Carson. |
| Route Coverage | X | X | | | X | X | Complete route reatructuring; circumferential route planned; x-press bua service. |
| Route Scheduling | X | X | | | X | X | Timed transfers at CBD terminal; rigid achedule adherence within 2 minutes. |

## 5.8 DALLAS-FORT WORTH, TEXAS

### Demographic/Socio-Economic Background

The Dallas-Fort Worth SMSA comprises 11 counties in north central Texas. Dallas (Dallas County) and Fort Worth (Tarrant County), some 30 miles apart, are separate urbanized areas. The SMSA's 1970 population of 2,377,979 represents a 36.8 percent increase over 1960 and accounts for 21 percent of Texas' population. During this period, the population of Dallas grew 24.2 percent to 844,401, and that of Fort Worth, 10.4 percent to 393,476. Population growth is stabilizing. During 1950-1960, the population of Dallas and Fort Worth had increased 37.7 percent and 20.2 percent, respectively.

Suburbs have grown more rapidly. The six incorporated communities between Dallas and Fort Worth had 295,387 residents in 1970, and experienced a 214 percent increase since 1960. Suburban growth is also slowing. During the previous decade, these communities experienced a 455 percent population increase. The mid-cities region communities are: Arlington, Bedford, Euless, Grand Prairie, Hurst, and Irving.

Of the 69 SMSA's having a 1970 population greater than 500,000, Dallas-Fort Worth is the sixth most rapidly growing area. Among these SMSA's, the average central city population decreased 3.1 percent and the average suburban population increased 22.1 percent.

The study area is characterized by low population density. Dallas has 2,786 and Fort Worth 1,689 persons per square mile. Among the U.S. cities with a 1970 population greater than 250,000, only Jacksonville, Florida, Kansas City, and Oklahoma City are less dense than either community.

Dallas-Fort Worth is a major marketing and financial center. The communities rank fifth among U.S. cities in value of bank assets and annual value of wholesale goods traded. The Dallas Market Center is the world's largest wholesale facility. The area is also an education center, with 28 colleges and universities and 125,000 full-time students.

Dallas-Fort Worth is a prosperous area. The region has 1,023 corporations with a minimum million dollar net worth, thus ranking third among all SMSA's. Since 1970 the two

central cities generally have had unemployment rates one-half the U.S. average. According to the 1970 census, approximately 25 percent of families have a $15,000 minimum annual income (U.S., average, 20.6 percent) and 16.5 percent of families have an annual income below the poverty line (U.S., average, 20.3 percent). The central cities are 23 percent black and 6 percent Spanish-speaking, and the proportion of population aged 65 and older is 8.4 percent.

## Transportation Characteristics

### Trip Characteristics

As might be expected for an area with low population density, travel distances in Dallas-Fort Worth are relatively long and the region is notably auto-dependent. Automobile ownership is high, with 88.7 percent of families owning at least one auto (U.S., average, 79.5 percent) and 39.3 percent owning two or more (U.S., average, 29.3 percent).

Dallas and Fort Worth have similar road networks, characterized by distinct urban beltways with radial expressways to the CBD. Two interurban expressways allow travel between Dallas and Fort Worth. The road systems were initiated during the 1930's. Since that time, the communities have had a 400 percent population increase. An extensive highway construction program in both communities has produced concentric beltways accompanied by a spider web of interconnecting highways. These transportation networks, with their 40 and 50 mph speed limits, encourage auto travel. By contrast, transit vehicles primarily traveling on residential streets average 12.8 mph during peak hours. Automobiles using the same routes average 20.6 mph.

While low population density and extensive road networks necessitate and facilitate auto use, Dallas and Fort Worth also have substantial transit-dependent populations. Approximately one-fifth of each communities' residents are elderly, have low incomes, or belong to minority groups.

### Transit History

#### Dallas

Prior to 1964, public transportation was operated by the Dallas Transit Company (DTC), a private corporation. During the 1950's and 1960's ridership declined approximately 3 percent annually. Patronage in 1963 was 31,600,000 passengers. Nevertheless, DTC consistently

operated at a profit. From 1960-1963, ridership declined by 2,800,000 passengers but revenue exceeded expenses by about 5.5 percent or $447,000 annually.

DTC was unable to update capital equipment or extend routes to cover the expanding city. The average bus age was 13 years. To maintain a 5 percent profit margin, DTC had reduced service. During 1958-1963, bus miles traveled declined 34 percent to 12,183,000 miles annually. Ridership declines experienced were related to these service cutbacks. With increasing labor and capital costs, it was profitable for DTC to reduce service. However, expanding service, especially through middle income neighborhoods, meant fewer passengers per bus-mile and risked incurring an operating loss.

During 1963, Dallas City and DTC officials met to consider public transportation's role and future development. They concluded that (1) Dallas required expanded and modernized transit, (2) the capital investment and service levels needed could not be sustained by a private corporation, and (3) public transportation should be owned and operated by Dallas. While it was considered desirable that transit revenues meet operating costs, it was felt that Dallas should be willing to support public transportation from city funds.

The city purchased DTC for $5,500,000 and incorporated the Dallas Transit System (DTS), which began operating January 1, 1964. DTS provides service throughout Dallas' 303 square mile area; to Garland, an adjacent suburb with 80,000 residents; and to three high income island cities that are entirely surrounded by Dallas, with the following populations: Cockrell Hill (3,515), Highland Park (10,133), and University Park (23,498).

Garland reimburses Dallas for labor, fuel, and equipment maintenance costs incurred. During fiscal 1975, $75,000 was paid. The island cities pay no service fee. During morning peak hours persons boarding buses in these communities pay a 10-cent fare surcharge. During evening peak hours deboarding passengers pay the extra fare. Thus, Dallas residents employed in the island cities, primarily as domestics, are not penalized. The communities are not directly charged for the service provided.

Dallas' mayor and city council appoint the DTS nine-member governing board, pass an annual operating budget, and have responsibility for fare level changes. The board hires a general manager and defines policies regarding regular route operations, implementation of new or specialized services, and ways of stimulating ridership.

From 1964 to 1971, when Technical Studies Grants became available for planning support, DTS ridership registered a net 2 percent decrease to 31,300,000 annual passengers. Annual bus mileage increased 5 percent to 12,700,000, and one-way scheduled route miles increased 27 percent to 373. In 1966, all 390 DTC buses were replaced, and garage/maintenance facilities were renovated through a $13,000,000 Section 3 UMTA Capital Grant. Initially, revenues exceeded operating expenses by about 4.3 percent or $343,000 annually, but the revenue surplus gradually declined. A 1 percent budget deficit occurred in 1969. The surplus was $136,000 in 1970 (budget $10,367,000) and $16,000 in 1971 (budget $11,209,000).

Since 1972 service expansions have continued. DTS currently operates 468 scheduled route-miles. During fiscal 1976 13,800,000 bus-miles were traveled. However, ridership has declined 20 percent to 25,000,000 annual passengers, and operating costs exceed revenues by 35 percent (budget $15,300,000). The deficit is financed half from Dallas city funds and half from a Section 5 UMTA Operating Grant. Reduced patronage, combined with service expansions and operating cost increases, account for the deficit. Since 1971, fuel costs have increased approximately 200 percent, and drivers' wages have risen 61 percent to $5.40 an hour. The annual cost per passenger has climbed from 34 to 61 cents.

Ridership declines may be attributed to increased automobile ownership and less rapid population growth. Since 1970 Dallas county passenger car registrations have increased approximately 5 percent annually compared to the national range of 2 to 5 percent.

Fort Worth

From 1938 to 1972 the privately owned Fort Worth Transit Company (FWTC) provided public transportation. Ridership declined from a peak 25,600,000 annual passengers in 1948 to 4,268,000 in 1972. At first, FWTC expanded service to stimulate patronage. Continued ridership declines necessitated service cutbacks and outmoded operating equipment was not replaced. Between 1961 and 1972 scheduled route-miles declined 9 percent to 215, annual bus miles traveled declined 38 percent to 3,299,000, and the average bus age was 28 years. FWTC eventually ceased to mark bus stops or change published schedules.

Nevertheless, the company maintained a 10 percent or better profit margin until the late 1960's, when annual 1 to 2 percent budget deficits occurred. Operating costs in 1966 totaled $1,950,000 while revenues were $2,312.000. By 1969

FWTC's revenues had decreased to $2,156,000 but operating costs had increased to $2,280,000. Projections of increased deficits, less ridership, and anticipated service cutbacks jeopardized continued public transportation.

In 1971, a report, Fort Worth Bus Operational Study: Transit Issues and Alternatives, funded by a Technical Study Grant, recommended that Fort Worth acquire FWTC. In an April 1972 referendum voters approved the transit company's purchase. The purchase sale price was financed by using a Section 3 Capital Grant. Fort Worth incorporated a city transit service, CITRAN, which began operations in August 1972.

Fort Worth's mayor and city council have appointed MacDonald Transit Associates as contract manager for CITRAN. The management staff is responsible to Fort Worth's assistant city manager for public transportation. Mayor and city council directly establish all policies concerning CITRAN operations. There is no appointed supervisory board.

While CITRAN provides public transportation throughout Fort Worth's 196 square mile area, service is oriented to transit dependent neighborhoods. Routes characterized by especially low patronage have either had service reduced or have been eliminated. Since 1972 scheduled route miles have decreased 12 percent to 190, annual bus miles traveled have declined 7 percent to 3,067,000, but ridership has increased 9 percent to approximately 5,000,000 annual passengers.

During fiscal 1976 CITRAN had a 56 percent operating deficit and a budget of $3,227,400. The deficit is financed 50 percent from Fort Worth general tax revenues and 50 percent from a Section 5 Operating Grant.

## Transportation Planning Process

### History

Prior to 1970 the North Central Texas Council of Governments (NCTCOG) was primarily a public relations agency promoting industrial growth and business development in the Dallas-Fort Worth area and several adjacent rural counties. The organization was also a discussion forum for community officials. However, NCTCOG performed no planning functions. The Texoma Regional Planning Commission coordinated planning studies requested by local governments. But the commission did not have a continuing planning program.

In 1970 NCTCOG was appointed the agency responsible for community development, land use, and transportation planning in the 16-county North Central Texas Planning Region, which

includes the 11-county Dallas-Fort Worth SMSA. In 1974 NCTCOG was designated the MPO for conducting urban transportation planning in the Dallas-Fort Worth metropolitan area.

In 1970 NCTCOG established an intensive transportation study area encompassing Dallas and Tarrant Counties and portions of six adjacent counties: Collin, Denton, Ellis, Johnson, Parker, and Rockwall. The area covers approximately one-sixth of the planning region's 12,000 square miles and includes 88 percent (2,200,000) of the region's 2,507,000 residents. Within the intensive study area NCTCOG defined three planning subregions: Dallas; Fort Worth; and Mid-Cities, representing the six incorporated communities between the central cities.

## Goals

NCTCOG's principal public transportation planning goals are to establish a Regional Transit Authority (RTA) and to develop a regional transit system for the intensive study area. Short-range planning goals are focused on the separate development of Dallas' and Fort Worth's present transit systems and the assessment of transit needs and service alternatives in the mid-cities subregion within an RTA framework. Long-range planning goals include coordinating transit services, developing public transportation in the mid-cities subregion, and introducing inter-urban service, including rapid transit, between Dallas and Fort Worth. NCTCOG advocates multi-modal planning, which consistently interphases public transportation and highway networks as complementary components in a regional transportation system. In NCTCOG planning philosophy, the purpose of public transportation is to provide mobility for transit-dependent persons and offer a competitive mode choice alternative to the automobile.

## Agencies

NCTCOG, the Texas State Department of Highways and Public Transportation (SDHPT), and local governments in the North Central Texas Planning Region have jointly developed an organizational structure for public transportation planning which involves federal, state, and local elected officials, with input from community transportation planners and the public. The planning process has six organizational components: NCTCOG's Department of Transportation, the Public Transportation Technical Advisory Committee, the Regional Transportation Policy Advisory Committee, its Steering Committee, citizen participation through the Community Involvement and Public Information Program, and SDHPT's Regional Planning Office.

NCTCOG's Department of Transportation proposes planning alternatives and guides the decision-making process so that programs incorporate respective communities' public transportation goals. NCTCOG undertakes planning studies, prepares grant applications, and assists communities in implementing and assessing changes in transit services. NCTOG coordinates but distinctly does not dominate the planning process.

NCTCOG itself receives planning assistance from the Public Transportation Technical Committee, whose members are local governments' transportation planners, DTS and CITRAN administrative personnel, and representatives from private transportation operators. The Technical Committee meets monthly to provide professional expertise from local transit planners and operators concerning NCTCOG's research programs.

The Regional Transportation Policy Advisory Committee's 154 members are elected officals from the North Central Texas Planning Region. The Policy Committee meets semi-annually to discuss transportation issues and planning proposals, including those concerning public transportation. The membership approves the UWP, proposals for UMTA grants, and policy guidelines for short- and long-range planning studies.

The Steering Committee, a subcommittee of the Policy Committee, is NCTCOG's primary decision-making body. Eighteen of its 20 members are local officials from Dallas and Tarrant Counties. The Steering Committee selects planning goals and programs for implementation, which are forwarded to the Policy Committee for refinement and approval. The Steering Committee meets monthly with NCTCOG to provide continuing community supervision of the planning process.

In February 1973 NCTCOG implemented a citizen participation program to provide information concerning transit issues and seek public involvement in the planning process. Citizens interact directly with community officials responsible for public transportation policy rather than the MPO's technical staff and have formal input addressing Dallas' or Fort Worth's particular planning needs.

The program has three components: regular meetings, active public relations, and a newsletter. Citizen transit policy groups have organized in neighborhoods under the direct guidance from Dallas' and Fort Worth's Community Public Relations Departments. Groups meet at least semi-annually prior to Policy Advisory Committee meetings. The citizen groups debate programs pending before the Policy

Advisory Committee or its Steering Committee, elect representatives to both committees, and are encouraged to submit proposals for the committee's consideration.

NCTCOG stimulates citizen participation by promoting the visibility of transit issues and community leaders responsible for transit planning. Through news media announcements, public awareness is maintained about the citizen meetings. Representatives from the Policy Advisory Committee or Public Transportation Technical Committee frequently serve as meeting speakers.

NCTCOG also sponsors a six-page, bimonthly newsletter, Transcript, financed from member communities' annual dues payments. The newsletter discusses current planning issues and notes changes in public transportation services. Each issue has a mailed circulation of 2,000 copies. Approximately two-thirds are sent to citizens who have participated in neighborhood meetings. Remaining copies are mailed to public service groups (Chamber of Commerce, League of Women Voters) and social service agencies.

The State Department of Highways and Public Transportation does not have discretionary authority concerning public transportation planning. However, since NCTCOG must obtain right-of-way waivers from SDHPT to establish expressway bus priority lanes or enable transit vehicles to use the region's highway network, contact is maintained with SDHPT's Regional Planning Office. NCTCOG informs the regional office of all planning activities and seeks input from their perspective. To date, the relationship has been characterized by close cooperation.

The state role in public transportation planning is indirect. Texas has no legislation defining planning requirements, but SDHPT does provide 65 percent of the local funding share for UMTA Capital Grants. The state pledges to supply the funds for all Capital Grant applications approved by UMTA.

NCTCOG's Unified Work Program represents the coordination of input from elected officials, community transportation planners, and the public. Once this organizational structure has approved planning, NCTCOG strives to achieve program implementation through close working relationships with each group in the decision-making process.

Relationships between all levels of government are crucial to transit success. Dallas and Fort Worth city officials establish their transit systems' annual budgets and have input for defining operating policies. NCTCOG and the state legislators are currently developing a proposal to

establish an RTA. It is expected that a bill will be introduced before the Texas State Senate and House of Representatives in January 1977.

### Technical Studies Grants

NCTCOG has received five Section 9 Technical Studies Grants. Table 17 describes each grant.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Before Technical Study Grant planning began, Fort Worth conducted no planning for public transportation, while Dallas' planning activities were primarily restricted to implementing standard schedule changes three times per year. Since 1971 both communities have developed similar public transportation planning programs and now consider transit an integral component in planning for transportation, land use, housing, and industrial development.

With encouragement from NCTCOG, Dallas and Fort Worth have personnel in their planning departments responsible for guiding local transit planning development and implementation. Planning is oriented toward meeting each communities' transit needs and capabilities to support public transportation. These planners are important coordinators in the planning process since they maintain frequent contact with NCTCOG, DTS, and with CITRAN administrators, and each communities' planning department staff.

The regional public transportation plan and subregional studies for Dallas and Fort Worth constitute the basis for continuing planning. These studies are periodically updated and brought into 5-year short-range and 15-year long-range perspectives. From these planning updates, NCTCOG has developed extensive capabilities for relating population projections, travel demand, land use, and various urban growth models to public transportation needs.

The subregional plan for the six mid-cities communities is the basis for their integration into a regional public transportation system. Short-range planning calls for developing Park-and-Ride facilities for transit to Dallas and Fort Worth. Implementing feeder bus lines to and from Park-and-Ride locations is also planned.

NCTCOG also works with the communities' planners to integrate transit into regional multi-modal transportation

planning. These research capabilities enable Dallas and Fort Worth to consider various transit planning alternatives that address the communities' population characteristics, geographic distribution patterns, and growth expectations. With NCTCOG assistance, CITRAN's route structure has been completely revised, orienting service to neighborhoods where transit trips are generated. The planning capabilities have enabled DTS to develop six new routes in expanding areas of that community.

NCTCOG also conducts reappraisal studies, which evaluate portions of plans previously implemented. Research assesses current operations and proposes changes to continue, expand, or terminate implemented plan items. Reappraisal studies have addressed Dallas' park-and-ride operations and Fort Worth's CBD bus priority thoroughfare.

DTS has implemented a computerized Service Inventory and Maintenance System (SIMS) for improved management efficiency. Dallas has used SIMS to provide a computerized record-keeping system and develop reports to reduce the cost of operating and maintaining the transit system. CITRAN has developed a less extensive management information system.

DTS and CITRAN also periodically gather passenger count and schedule time deviation data from bus routes. This information is employed to revise route fleet requirements and change published schedules. Dallas has mechanized scheduling operations. In 1975 Fort Worth became the first U.S. city to implement RUCUS.

New Capital Acquisitions

During the past five years DTS's bus fleet has expanded from 390 to 442 buses. Since 1971, 150 45-passenger buses have been purchased in 50-vehicle increments using 3 UMTA Capital Grants. The replacement program is designed to increase the bus fleet to meet service expansion while maintaining an average vehicle age of 5 years. DTS has also replaced all CBD bus stop signs and plans to install 80 bus shelters during fiscal 1977.

CITRAN's 115-bus fleet consists of 80 new 45-passenger and 20 new 51-passenger vehicles supplemented by 15 renovated FWTC buses. When CITRAN acquired FWTC's 138 buses in 1972, less than 80 were operational, and the average vehicle age was 28 years. Breakdowns were so frequent that it was necessary to rent 15 buses from a private company to maintain service levels.

CITRAN has installed 600 bus stop signs, 78 bus shelters, and 500 bus stop benches. During fiscal 1977 and

1978, installation of an additional 600 bus stop signs and 30 bus shelters is planned. Also, three bus garage/maintenance buildings and a transit management center have been completely renovated. All equipment acquisitions and building improvements were financed by two UMTA Capital Grants.

SURTRAN

DTS operates surface transportation (SURTRAN) for the Dallas-Fort Worth Regional Airport. Dallas owns 85 percent and Fort Worth 15 percent of SURTRAN's capital equipment and facilities. Service began September 1974, employing 45 51-passenger buses purchased through an UMTA capital grant. The fare is $3.00. Four express bus routes operate round trip service to the Dallas and Fort Worth CBD's and two other Dallas locations serving major hotels along each route. Dallas generates approximately 70 percent and Fort Worth 30 percent of SURTRAN's annual ridership.

New or Improved Services With Existing Facilities

Dallas and Fort Worth have undertaken somewhat different multi-component programs to provide need-responsive public transportation and stimulate ridership. The programs focus on improving CBD access by transit, implementing new services, fare system changes, and marketing.

Public Transportation and the CBD

Dallas' and Fort Worth's bus route structures have been completely reorganized. Service is strongly CBD-oriented, since such trips account for approximately 55 percent of each communities' transit patronage. Sixty-five of DTS' 75 bus routes and 23 of CITRAN's 28 routes terminate in the CBD. DTS has 5 miles of bus priority lanes on major downtown streets and roadways into the CBD. CITRAN has established Fort Worth's main thoroughfare (Throckmorton Street) as a bus priority facility, restricting both curbside lanes to transit traffic.

Short-range CBD planning includes bus pre-emptive traffic signals in Dallas and increased use of bus priority lanes in Fort Worth. Long-range planning in Dallas and Fort Worth includes customer information centers and bus priority malls whereby at least one major street will be entirely limited to transit traffic.

New Services in the CBD

DTS has established a loop route, "Hop a Bus," to provide shuttle service about the CBD for 10 cents per ride. Hop a Bus employs six 12-passenger paratransit vehicles from a former UMTA dial-a-ride demonstration project. Service began February 1976, and ridership is 8,000 passengers weekly.

In 1974 CITRAN initiated a CBD fare-free zone, "FREETRAN," along Throckmorton Street, relying on regular route service. Persons may board any bus operating in the zone, which is 1.5 miles long. Ridership is 5,000 passengers weekly.

DTS operates three park-and-ride terminals from which persons board express buses to the CBD. The bus fare is 60 cents and parking fee 25 cents. Current patronage is 400 cars per day. Parking facilities are leased. One site is a drive-in theater. In this manner, DTS may select and change terminal locations to stimulate Park-and-Ride patronage. Since the program began in 1974, two of the facilities have changed location.

To improve CBD access, CITRAN has implemented parking facilities, with persons walking to the nearest regularly scheduled bus route rather than boarding express buses at the parking lots. Currently, 17 church and school parking areas are designated as "Park-and-Go" terminals. The facilities are donated and there is no parking fee. Total patronage is approximately 80 cars per day.

Other New Services

CITRAN operates 16 special bus routes that offer round trip work travel. Commuter buses make limited residential stops and carry passengers directly to work. Persons may travel either round trip or one-way. Fare is 60 cents each way. A minimum of 30 passengers from one work site is required to initiate commuter service. Ridership is 3,000 passengers weekly. DTS does not operate a similar service.

DTS permits passengers to deboard for up to 30 minutes and to then reboard and continue travel on the same route in the same direction. "Stop-and-Go" passengers receive a pass showing the departure time noted by the bus driver. The service was initiated to encourage non-work and multiple stop trips.

DTS and CITRAN have begun bus charters. Citizen groups and civic or charitable organizations may lease buses for needed time periods seven days weekly. Each transit system

offers charter service to destinations in either Dallas or Tarrant counties. During 1975, DTS and CITRAN grossed $1,100,000 and $225,000, respectively, from bus charters. These revenues represent 7 percent of DTS's and 8 percent of CITRAN's fiscal 1976 operating budgets.

## Elderly and Handicapped Services

Dallas and Fort Worth have initiated special preference service for the elderly and handicapped during offpeak hours. DTS and CITRAN buses will deviate up to one block from a scheduled route for deboarding elderly and handicapped persons. It is estimated that less than 50 persons per day utilize this service in each community. In Fort Worth, the elderly and handicapped may also call CITRAN and the next scheduled bus will depart up to one block from its route to pick up passengers.

In fiscal 1977 Fort Worth plans to purchase 5 paratransit vehicles and test a demand-responsive service for the elderly and handicapped. Dallas plans to implement a similar service during fiscal 1978.

Another CITRAN service, OMNIBUS -- transit for everyone, permits elderly and handicapped groups to charter buses at a discount.

## Fare System Changes

DTS's base fare has remained 35 cents. There are five fare zones with a 10-cent charge for the first zone crossing and 5-cent fee for additional zones traveled. The fare for persons aged 65 and older was reduced from 15 cents to 10 cents with zone fees eliminated. The elderly may also purchase a monthly $5.00 pass that allows unlimited bus travel.

Available to the general public is a $5.00 Commuter Pass offering the same amount of transit service. A $14.50 Super Commuter Pass provides $15.00 worth of service. The passes may be purchased at 80 business and employment establishments.

CITRAN's bus fare has also remained 35 cents, but all zone fees have been eliminated. CITRAN has also implemented a 15-cent elderly fare during offpeak hours. Commuter card 13 is a monthly pass available to the public that permits unlimited bus travel for $13.00.

Marketing

Dallas has implemented a media-oriented marketing program. DTS receives the annual equivalent of $250,000 in advertising time donated by local radio and television stations for public service use. An estimated two-thirds of the announcements occur during prime time hours. DTS incurs only the expense of preparing the transit advertisements.

Fort Worth has initiated a marketing program that exclusively addresses stimulating patronage from transit-dependent persons. The program, through a $100,000 annual contract with an advertising firm, utilizes billboard advertisements and door-to-door distribution of transit use information in low income neighborhoods. Route schedules are also available at churches, schools, and business establishments.

Institutional Climate

Although Dallas and Fort Worth participate in the same planning organization and are working toward a regional public transportation system, DTS and CITRAN are very different transit systems, operating in contrasting institutional climates. When planning under Technical Study Grant support began in 1971, DTS was publicly operated and experiencing a 20 percent annual budget deficit supported from Dallas city funds. Through a 1966 UMTA Capital Grant, 75 percent of the bus fleet had been replaced, garage/maintenance facilities renovated, and ridership stabilized. But the Fort Worth Transit Company was privately operated with an increased budget deficit and ridership declining 5 percent annually. Approximately one-third of its bus fleet was not operational.

Through Section 3 Capital Grants received since 1971, DTS' and CITRAN's bus fleets and maintenance facilities are comparable. The Technical Study Grant program's principal impact has been to restructure regular route service and develop new and specialized services. DTS' annual ridership is approximately 500 percent greater than CITRAN's. While Dallas' operating deficit is 35 percent, Fort Worth's is 56 percent. Nevertheless, Fort Worth has demonstrated considerable innovation and has developed a need-responsive public transportation system. Fort Worth operates 17 free "Park-and-Go" facilities. Dallas has three Park-and-Ride facilities. Each location is leased and the service operates at a substantial deficit. CITRAN has implemented 17 commuter routes, but DTS has no similar service. CITRAN's fare-free CBD compares with DTS' 10-cent fare. Both transit systems provide service throughout the

community, but CITRAN has oriented operations more to transit-dependent neighborhoods. CITRAN also provides specialized services such as "Stop-and-Go" and OMNIBUS. Since 1971, Fort Worth's ridership has increased 9 percent and Dallas' decreased 20 percent.

## Conclusions

The transit experience in Dallas-Fort Worth demonstrates an MPO's potential impact upon public transportation planning. NCTCOG guides the decision-making process without dominating it and has developed a comprehensive organizational structure for planning which brings together citizens, community transportation planners, local, state, and national elected officials. Each group has both formal decision-making input and formal contact with the other segments in the planning process. All planning requires each groups' consent. Whenever a group rejects a plan it must develop an alternative proposal.

Approval of public transportation planning is an interim and not final step in the planning process. NCTCOG then coordinates support from local officials and maintains contact with community transportation planners to bring about plan implementation. A continuing public relations program promotes citizen awareness of transit planning issues. After implementation NCTCOG works with each group in the planning process to re-evaluate transit services and consistently develop public transportation systems which are consonant with respective communities' self-defined transit goals.

For a summary matrix, see Table 18.

TABLE 17. DALLAS-FT. WORTH - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| TX-09-0005 | NCTCOG | $1,107,800 | 1970-72 |
| TX-09-0006 | NCTCOG | 381,390 | 1971-74 |
| TX-09-0007 | NCTCOG | 284,310 | 1971-74 |
| TX-09-0012 | NCTCOG | 1,308,000 | 1971-74 |
| TX-09-0024 | NCTCOG | 1,086,250 | 1974-77 |

# TABLE 18. DALLAS-FT. WORTH - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region VI

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 5 | 4.2M | 1970 |
| Capital, Section 3 | 6 | 17.6 M | 1972 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | x | x | x | Planning updated annually. |
| Operational | x | x | | x | x | x | Improved scheduling operations, Fort Worth has RUCUS. |
| Long Range | x | | 15 | x | x | x | Planning periodically brought into 5 year perspective. |
| Modelling | x | x | | x | x | x | Travel forecasts and urban growth models related to transit needs. |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | | x | | x | Dallas 150 buses, Fort Worth 100 buses. |
| Garage/Maintenance | x | x | | x | | x | Fort Worth 4 buildings renovated. |
| Operational/Other | x | x | | x | | x | Bus stop signs, Fort Worth 78 bus shelters, Dallas 80 bus shelters planned FY77. |
| Park and Ride | x | x | | x | | x | Dallas 3 sites, Fort Worth parking facilities with transfer to regular route buses (Park and Go). |
| **Service Improvements** | | | | | | | |
| Special Services | x | x | | x | | x | Fort Worth commuter routes for work round trips. |
| Handicapped & Elderly | x | x | | x | | x | Buses deviate from routes for deboarding passengers. |
| Demand Responsive | x | | | x | | x | Service to be tested for H. and E. in Dallas. |
| Management | x | x | | x | | x | Data maintenance system for Dallas and Fort Worth. |
| Marketing | x | x | | x | x | x | Extensive marketing programs to stimulate patronage. |
| Other | x | x | | x | | x | Subscription service, bus charters, Fort Worth fare free zone, Dallas 10 cent CBD fare. |
| Route Coverage | x | x | | x | x | x | All routes revised. |
| Route Scheduling | x | x | | x | x | x | Schedules revised periodically. |

## 5.9 ERIE, PENNSYLVANIA

### Demographic/Socio-Economic Background

The city of Erie and Erie County are located in Pennsylvania's northwesternmost corner. Erie County provides Pennsylvania with its only shoreline on Lake Erie, extending 47 miles along the lake. The City of Erie is situated midway along this shoreline. The city is rectangular in shape with its length paralleling the shore. Its terrain is quite flat because of a lake plain that extends inland 5 to 6 miles.

With a 1970 population of 129,123, Erie ranks as Pennsylvania's third largest city. The population of Erie County is concentrated around the City of Erie. Outside of the city, densities fall rapidly and much of the county is rural. The density within the city of Erie is 6,837 persons per square mile, but only 169 persons per square mile in the remainder of the county. The City of Erie contains 49 percent of the county's population, the urbanized are 70 percent of the county's population, although the city represents 2 percent and the urbanized area 5 percent of the county's land area.

Between 1960 and 1970 the city of Erie experienced a 7 percent decrease in its population. During the same time period Erie County experienced a 5 percent increase in population.

The percentage of elderly living in Erie County (Erie SMSA) is 9.5 percent, similar to the national average. The percentage of blacks in the county (SMSA) is 3.4 percent, considerably below the national SMSA average of 12.0 percent.

The percentage of persons in the Erie SMSA living below the poverty line is 6.8 percent and the average per capita income is $2,810.

Erie's economy is heavily industrial. Between 40 and 50 percent total employment of Erie County residents between 1950 and 1970 was with manufacturing firms, especially metals and metal products. The largest firm is General Electric, employing almost 13,000 persons in the production of locomotives, motors, and generators. Other major firms include Hammermill Paper Company, employing over 2,000, American Sterilizer Company, employing 1,500, and Lord Kinematics, employing 1,500 in the production of bonded rubber products. There are, in addition, approximately 35 other firms employing between 100 and 1,000 persons engaged primarily in the manufacture of machines and machine parts.

## Transportation Characteristics

### Trip Characteristics

Erie's streets are laid out in a grid pattern with avenues parallel to the shoreline. Its streets are broad and traffic congestion is not a major problem. The modal split for the Erie SMSA is 3.5 percent. The number of families owning one or more autos was 86.1 percent in 1970.

### Transit History

Erie was on of the first cities in the country to have an electric trolley system. The system, extensive during its peak years, began in 1888. Trolley usage started to decline during the 1920's, and service was discontinued in 1935. In 1925 Erie Coach Company operated the first motor bus in Erie, and continued to provide bus service to the city until public takeover in 1967.

During the 1950's and 1960's costs of operating the bus system increased and ridership declined, forcing Erie Coach to both raise fares and cut back service. Ridership fell from 16 million to 3 million in 1966, a drop of 80 percent since 1950.

In January of 1965, the city council established the Erie Urban Transit Study Committee, a group of private citizens to investigate ways of meeting the transit needs of Erie residents. The committe recommended the formation of a nine-member Metropolitan Transit Commission.

This commission, formed in late 1965, employed a consultant, Simpson and Curtin, to study the area's transit needs. Following this study, the commission recommended the formation of a transit authority, which would allow for the takeover of the Erie Coach Company and the application for federal funds for the purchase of new buses and the construction of a new garage. In 1966 the nine-member Erie Metropolitan Transit Authority (EMTA) was established. By the end of the year, a public takeover of Erie Coach had been carried out. The private operator rented their 35 buses and garage facilities until new buses could be delivered an a new garage facility constructed. This enabled EMTA to take over the private operator with no bonded indebtedness. By the end of 1967, 50 new buses, financed in part by the federal government under an emergency capital grant, were in operation. In 1969 a new garage, similarly financed, was opened.

Subsequent capital grants in 1971, 1973, and 1976 have allowed the purchase of 19 new buses. Since the public takeover, fleet size has increased 97 percent, route miles operated 47 percent, and ridership 62 percent.

## Transportation Planning Process

### History

Comprehensive regional planning in the Erie area began in 1956 with the formation of the Erie County Planning Commission (ECPC), established at that time by the Erie County Commissioners. The ECPC, with the aid of its staff arm, the Erie Metropolitan Planning Department (EMPD), currently fulfills the role of regional planning agency.

Transportation planning in the area began in 1964 with the formation of the Erie Area Transportation Study (EATS). The study was initiated in response to the 1962 federal legislation requiring a "3C" transportation process in all area with populations over 50,000. The study area includes the City of Erie and the surrounding urbanized area. It was expanded in 1974 to include all areas expected to be urbanized by the year 2000. EATS was established under a legal agreement between PennDOT (the state deparment of transportation), the city of Erie, and the county of Erie. The agreement required the establishment of four standing committees: a policy board, a technical committee, a committee of local government officials, and a citizen advisory committee. This requirement is currently fulfilled by the EATS Coordinating Committee, the EATS Technical Committee, the Local Government Advisory Committee (LGAC), and the Citizens Advisory Committee (CAC).

PennDOT, the state department of transportation, was formed in 1970. One branch of PennDOT, the Bureau of Advanced Planning, is responsible for planning in Pennsylvania's smaller urban areas. The Bureau of Advanced Planning works in conjunction with EATS and EMPD in providing long-range transportation planning for the Erie area.

The Erie Metropolitan Transit Authority (EMTA), established in 1966 to facilitate public takeover of the private carrier, has a nine-member board, of which six members are appointed by the Erie City Council and three are appointed by the Erie County Commissioners. It currently assumes responsibility for short-range and operational transit planning.

Erie's first transit planning document evaluated the transit system in 1966 before the public takeover. The report was locally funded and was prepared by the consultant, Simpson and Curtin. Since that time three Section-9 funded studies have been undertaken, all using Simpson and Curtin as consultant: a 1969 TDP, a 1974 study on school/regular bus service, and a TIP to be completed in 1976.

## Goals

Erie does not currently have explicitly stated transportation planning goals. As part of the TIP now in progress, a statement of goals for the Erie Area Transportation Study is being developed with input from community leaders, PennDOT representatives, and EMTA officials.

The goals of EMTA, although not explicit, seem to be the attraction of as many new riders as possible, both transit-dependent and choice riders. This goal is to be accomplished by providing high quality service to bus patrons and by increasing service coverage as much as possible while at the same time keeping operating costs in line.

## Agencies

The four major agencies involved in transportation planning in the Erie area are the Erie County Planning Commission (ECPC), the Erie Area Transportation Planning Study (EATS), the state department of transportation (PennDOT) and the Erie Metropolitan Transit Authority (EMTA). These agencies have all signed a memorandum of understanding describing their respective roles and responsibilities. ECPC is the A-95 review agency and the HUD 701 agency for the Erie area, with the assistance of its staff arm, the Erie Metropolitan Planning Department (EMPD). EATS acts as the MPO for Erie and reviews the annual Unified Work Program. The EMPD and PennDOT's Bureau of Advanced Planning both provide professional planning assistance to EATS in compilation of UWP and in evaluation of transportation proposals.

As mentioned before, there are four EATS committess. The EATS Coordinating Committee is the policy board and must act on all transportation proposals and approve the UWP. Its membership includes nonvoting representatives of EMPD, HUD, UMTA, FHWA, FAA, and the state Department of Community Affairs. Its voting members include the Mayor of Erie, an Erie businessman, local officials from surrounding townships, a representative from the Bureau of Advanced Planning, the PennDOT district engineer, and the Chairman of the Board of the Erie County Commissioners.

The EATS Technical Committee performs technical evaluations of transportation proposals and makes recommendations to the Coordinating Committee. Its structure is somewhat parallel to that of the Coordinating Committee, except that it contains more planning professionals. Its membership includes nonvoting representatives of FHWA, FAA, HUD, UMTA, the state Department of Community Affairs, and the president of Erie Airways. Its voting members include representatives of

PennDOT, the Bureau of Advanced Planning, the Erie Public Works Department, the EMPD, the Erie Municipal Airport Authority, the Erie-Western Pennsylvania Port Authority, and EMTA.

The Local Government Advisory Committee (LGAC) is composed of elected officials from the 40 municipalities that make up Erie County. An elected steering committee of nine members votes on matters before the committee. The LGAC reviews the work of the Technical Committee and makes recommendations to the Coordinating Committee.

The Citizens Advisory Committee (CAC) also makes recommendations to the Coordinating Committee based on the desires of local citizens. Its membership includes representatives of various local organizations and interested citizens. Membership in the CAC is open to all citizens. Annually its membership elects a six-member board of directors along with a board chairman and vice-chairman. This board serves as a go-between communicating with PennDOT officials, local officials, and the CAC membership.

EMPD and PennDOT's Bureau of Advanced Planning share long-range planning responsibilities. EMPD maintains data files on land use, socio-economic, demographic, and transportation characteristics of the Erie area. The Bureau of Advanced Planning does modeling for travel demand forecasting using EMPD's data as input. EMPD produces an annual sureveillance report to update its data files. Every 5 years the Bureau of Advanced Planning tests model predictions against observed values and tries to account for any discrepancies. Every 10 years a re-evaluation of the long-range plan is performed, taking into account unpredicted growth patterns, changing community values, and new technologies and planning methods.

EMTA does operational planning. For short-range planning EMTA has relied on the consultant, Simpson and Curtin. On an annual basis EMTA provides information on its physical plant, operating stock, operating revenue, service area, and ridership to EMPD to update the mass transit data file.

Technical Studies Grants

Erie has received four Technical Studies Grants. In 1968 EMTA used its first such grant to fund a TDP for the newly acquired transit system. The 1969 study (Simpson and Curtin) recommended improvements to be undertaken over the next 3 years. The document was subsequently revised to cover the next 6 years. The TDP suggested new routes, route extensions, fare reductions for students and senior citizens, bus-actuated traffic signals, elimination of some CBD on-street parking, a downtown shuttle service, a club bus operation to the CBD and/or major industry, increased

parking space at EMTA headquarters, and the purchase of new buses, two-way radios, and bus passenger shelters.

In 1973 a Technical Studies Grant funded a Simpson and Curtin study of school/regular bus service in Erie County. This document evaluated five corridors that have the potential for school/regular passenger joint-use service. Three of the five corridors were eliminated from consideration because of lack of regular rider demand, prior transportation arrangements on the part of school districts, or the refusal by private intercity carriers currently operating on the corridors to relinquish local operating rights to EMTA. The study addressed implementation of three joint-use routes on the two remaining corridors. No new capital expenditures were considered necessary to undertake this service. It was estimated that the new routes would generate more revenue per mile than other EMTA routes and that the school systems would also save money under this arrangement.

The two remaining Technical Studies Grants were channeled to Erie in a different fashion than the first two. In 1975 PennDOT applied for and received a block grant of Section-9 funds to be distributed among six smaller urban areas (under 200,000) in Pennsylvania, including Erie. In 1976 a similar block grant was approved for seven urban areas. The amount of funding for each urban area is specified in the grant. In Erie these funds have been applied toward the preparation of the annual UWP and to fund a TIP, currently being developed by Simpson and Curtin. The TIP will make recommendations for transit improvements in the next 6 years. Accompanying the TIP, Simpson and Curtin will prepare a discussion of long-range transit options for the Erie area. (See Table 19.)

## Transportation Planning and Implemenation

### Development of Professional Planning Capabilities

EMPD currently has a staff of 17, including 2 transportation planners. The EMPD and the Bureau of Advanced Planning are scheduled to do an evaluation during the next year of long-range transit options.

Short-range and operational planning are the province of EMTA. EMTA does not have a professional transit planner on their staff. The EMTA board has a Planning and Advanced Project Committee which plans new routes. In order to estimate potential on proposed routes, surveys are frequently requested by the committee.

EMTA has relied on Simpson and Curtin to do any required short-range transit planning. They prefer to hire such expertise as needed.

New Capital Acquisitions

EMTA has received four Capital Assistance Grants. In 1967 the newly-formed EMTA received a $2.4 million grant which allowed the purchase of 50 new 45-passenger buses and the construction of a new "operations center" (office, garage, and maintenance facility). Subsequent Capital Grants in 1971, 1973 and 1976 have allowed the purchase of 5, 6 and 8 buses, respectively, bringing EMTA's current fleet size to 69. Along with new buses various other transit support equipment has been puchased, including fareboxes, two-way radios, garage equipment, service vehicles, bus shelters, and bus stop information signs.

For all these capital grants the cost remaining after the federal share has been paid by the state, city, and county, with the state assuming the larger proportion.

Since November 1974 EMTA has received federal operating assistance. The federal government assumes 50 percent of the operating deficit, with the state assuming two-thirds of the remaining 50 percent and local government one-third (city 60 percent, county 40 percent).

New or Improved Services With Existing Facilities

EMTA's basic fare has been 30¢ since 1969 when it was raised from 25¢. At the same time that the fare was increased, an exact fare system was instituted. Bus patrons can buy tokens (27.5¢) at 70 different locations around the city or they may pay 30¢ in change. Transfers between lines are 5¢. There are a number of fare discounts. All passengers may ride for 20¢ during off-peak hours. Handicapped persons may ride for 15¢ during off-peak hours with free transfers. Senior citizens ride for free during off-peak hours. The student fare is 20¢ at all times.

Since EMTA's formation there have been a number of route additions and extensions. A number of special services have been instituted. In cooperation with the Central Erie Businessmen's Association, since 1969 EMTA has sponsored many promotions to provide free transit service inbound to the CBD. The CEBA provides the publicity for these specials. The service has proved quite successful, with the overall increased ridership more than enough to offset the free inbound fare.

EMTA now also provides a downtown shuttle service, also designed to draw people into the CBD. Buses travel along State Street, the central street through the CBD, operating on 8-minute headways. The fare is 10¢.

EMTA provides school transport for students within the city of Erie and, as mentioned previously, has instituted several new routes outside of the city to serve both

students and regular passengers. The school systems involved subsidize the EMTA based on the number of students carried.

The 1969 TDP recommended a commuter club bus service to the CBD or major industry. This recommendation has not been carried out, but EMTA has initiated new service for workers commuting to the G.E. plant. G.E. employees were twice surveyed to ascertain their transit needs. Two weeks of experimental free transit was provided by EMTA to G.E. workers. Today EMTA provides 10 runs per day to the G.E. plant.

EMTA does not provide special services for the elderly/handicapped at this point. They have approved private social service agency purchase of vehicles for this purpose under the state-adminstered 16(b)2 program.

EMTA has a preventative maintenance program which has resulted in good schedule adherence. The equipping of all buses with two-way radios has also helped in this regard. EMTA cleans their buses inside and out daily in an effort to maintain a good public image.

Most bus stop signs in Erie now have a schedule and a route map for the appropriate route printed on the sign. All route schedules are published quarterly in local newspapers. Whenever routes are modified, information on the change is sent to all residents within four blocks of the affected route. Each change is also illustrated in local newspapers.

Institutional Climate

EMTA has made good use of community institutions in setting up services which maximize the use of existing transit facilities. Their relationship with the CBD merchants has produced successful downtown promotional program. Their contacts with General Electric have resulted in a successful commuter service. The joint school/regular service has produced new routes and new revenues.

The transit authority tries to balance the goal of cost efficiency with the goal of serving as broad a population as possible, particularly the transit dependent. Their school system transit service provides a community service, while increasing EMTA ridership and revenues. The reduced fares for the elderly are subsidized by the state so that even in serving this transit-dependent population, EMTA is not losing revenues.

Substantial progress has been made since the first section 9 funding in regard to increased ridership, introduction of transit innovations, and improvements in the quality and quantity of transit service. The personnel at

EMTA do have a good sense of the community and its needs, and their morale in relation to the transit system is high. The director has had a good deal of operational experience. EMTA states that a recent national survey found their system ranked highest among medium-sized cities surveyed with regard to route miles of service, buses per resident, and frequency of bus usage by a population; moreover, it had the lowest average fare among cities surveyed.

Erie's funding mechanism for capital, operating, and planning assistance involves the federal government's assumption of the major share with the state, the county, and the city paying various proportions of the remainder. This arrangement provides a stable source of funding for Erie's transit system. Recently, the governor impounded the state's share of transit assistance, holding up in the process the release of the Simpson and Curtin TIP. This action is not likely to be repeated in the future.

Citizen participation is part of the transportation planning process in Erie. Membership in the EATS's Citizen Advisory Committee is open to all, although the CAC has only a review and not a decision-making role. Meetings of the CAC are held quarterly to review overall transportation plans and specific proposals.

Conclusions

Erie seems to be making efficient use of resources available. The transit authority has used its operational experience to create a system that balances cost effectiveness with service expansion. The transit authority has taken an outgoing stance in relation to the community. They have formed mutually benefical relationships with the local school systems, downtown businessmen, and local industry.

For a summary matrix, see Table 20.

TABLE 19. ERIE - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| PA-09-0002 | EMTA | $24,000 | 1969 |
| PA-09-0016 | EMTA | 25,000 | 1973 |
| PA-09-0028 | EMPD | 18,750 | 1974 |
| PA-09-8002 | EMPD | 35,000 | 1976 |

# TABLE 20. ERIE - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region III

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 4 | 103K | 1968 |
| Capital, Section 3 | 4 | 2.8M | 1967 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professionel Capability** | | | | | | | |
| Short Range | X | X | | | X | | Done by consultant for transit authority. |
| Operational | X | X | | | | X | Done exclusively by transit authority. |
| Long Range | X | | 2 | X | | | To be done by regional planning agency and state DOT for MPO. |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | X | X | | | X | X | 69 new buses have been purchased. |
| Garage/Maintenance | X | X | | | X | X | Garage/maintenance/office facility completed. |
| Operational/Other | X | X | | | X | X | Bus shelters, bus stop signs, fare boxes, two-way radios. |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | X | X | | | X | X | New school/regular service routes; downtown circulator service. |
| Handicapped & Elderly | X | X | | | X | X | Free off-peak fares for the elderly, reduced off-peak for handicapped. |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | X | X | | | X | X | Route schedules and maps on bus stop signs; free inbound fare for shopping; schedule distribution thru' media. |
| Other | | | | | | | |
| Route Coverage | X | X | | | X | X | New routes created, present routes modified. |
| Route Scheduling | X | X | | | | X | Headways increased, hours of service changed. |

## 5.10 FLAGSTAFF, ARIZONA

### Demographic/Socio-Economic Background

The City of Flagstaff is located in Coconino County in northern Arizona. Flagstaff is the county seat of Coconino County and the largest city in northern Arizona. With an area of 11,886,720 acres, Coconino is the second largest county in the continental United States. It has a population density of 2.6 persons per square mile.

Between 1960 and 1970, the county population increased by 15.5 percent from 41,857 to 48,326. In July 1974, the population estimate was 62,700, a projected 29 percent increase since 1970.

Most of the growth is concentrated in the Flagstaff area. Between 1960 and 1970, the population of Flagstaff increased by 43 percent, from 18,214 to 26,107. Flagstaff's present population is about 33,000, a 21 percent increase since 1970. The average annual growth rate is expected to continue at about 7 percent per year.

Employment in Coconino County is concentrated in the service, government, and wholesale/retail sectors of the economy, which account for 65.6 percent of the total employment. The remaining 34 percent of the employment is distributed among manufacturing, mining/quarrying, construction, transportation, communication, utilities, finance, real estate, and agriculture sectors.

Northern Arizona University is a large employer in Flagstaff, with over 1,000 full-time employees and about 1,200 part-time employees. In addition to this labor base, the extensive building program of the university continues to generate a demand for construction workers.

Government is the single largest employer in the county. Federal government activity includes the operation of the Coconino National Forest, the Rocky Mountain Forest and Range Experiment Station, the postal service, and the Navajo Army Depot. County government employment results primarily from the fact that Flagstaff is the county seat. State government employment is centered mostly in Northern Arizona University, one of the three major universities in the State.

The tourist industry continues to flourish, causing rapid growth in service employment. Flagstaff's location at the junction of I-40 and I-17, plus its closeness to many major recreational and scenic areas, such as the Grand Canyon, Sunset Crater, and the Snow Bowl, make tourism the

most important source of employment. Flagstaff is also a transportation and service center for the wide area of North Central Arizona. The overall economy of Flagstaff has exhibited substantial and sustained growth particularly since 1960.

The manufacturing sector has grown during the past decade. Lumber and wood products are the major manufacturing industry. Garment manufacturing, paper products, and electronic wire and cable production are examples of recent enterprises that have located in Flagstaff.

The geographic division of Flagstaff into two distinct and separate areas is caused by a mesa. Unlike most small cities, Flagstaff has two separate business districts, an older one, East Flagstaff, and a newer one, West Flagstaff. The CBD's are separated by a distance of four miles. Most employers are located in and around West Flagstaff.

Transportation Characteristics

Trip Characteristics

Flagstaff, like many other cities its size in the United States, grew up with the automobile. As a consequence, it is a highway-oriented community almost totally dependent upon the private automobile. The major activity centers are not easily accessible to those who do not own or have access to an autmobile.

In 1974, the Geography Department of Nothern Arizona University in conjunction with the Flagstaff City Planning Department conducted a citywide household survey by mail, which showed that 4 percent of households have no car, 35 percent have one car, and 61 percent have two or more cars. The average number of residents per household is 3.1, and the average number of vehicles per household is 1.6.

Approximately 3.3 percent of the population is over 65 years of age. It is estimated that at least 60 percent of the elderly are in the low-income range and are unable to supply their own transportation.

A unique feature of the Flagstaff area is the presence of approximately 9,000 university students at Northern Arizona University (NAU), 5,000 of whom live off campus. The growth of enrollment at NAU is expected to continue at a rate of 200 students per year.

The university is located several miles from the old central business district of Flagstaff. Many of the off-campus students live in the older eastern side of the city that has lower rent housing surrounding the old central business district.

Of the nearly 5,000 NAU students who live off campus, about 58 percent do not own an automobile and are basically without any form of convenient and reliable transportation. This group is characterized by lower incomes; they probably will become increasingly dependent on other forms of transportation as the costs of owning and operating a car increases.

At present, students either hitchhike, bicycle, or drive to the campus, which has the usual troublesome parking problems. There is strong student and administration interest in a transit system with access to the university.

Transit History

The City of Flagstaff does not have a full-service public or private transit system. Flagstaff has good intercity public transportation connections, but a limited intracity system offering four types of service.

A system of 7 taxis is operated by Nava-Hopi Tours, which receives 100-170 calls per day primarly from visitors to Flagstaff.

The County Community Services Department furnishes some public transportation including three vans that serve 2,200-2,400 elderly, sick, handicapped and needy persons per month on a demand basis. Also one surplus property bus (People's Rapid Transit), with a backup bus, offers fixed schedule, fixed route service for the lower-income population, 5 days a week, with 6 daily round trips and no fee for the 70-80 daily users.

Some 2,500 of the Flagstaff School District's 8,000 public school pupils are transported by 35 buses provided by a private contractor and 3 school district buses.

A free on-campus shuttle bus system operates between the North and South university campuses, using two buses.

Thus, the only public transportation is People's Rapid Transit and the taxicab company. People's Rapid Transit is inaccessible to much of the population, and its frequency of service is low.

Lack of adequate transit in Flagstaff is due to historical influences. For the past thirty years, taxi operators have obtained a franchise inclusive of taxi and bus operations from the state government with the latter providing tourist charter services. This franchise monopoly has restricted municipalities from offering transit services.

## Transportation Planning Process

### History

The Flagstaff Area Transportation Study, the first comprehensive approach to transportation planning in Flagstaff, was prepared by consultants for the Arizona State Highway Department, Coconino County and the City of Flagstaff in 1970.

Long-range transportation planning for highways and streets was the study's primary objective. It sought solutions to problems attending population expansion, particularly physical limitations and deficiencies in the sources and methods of financing highways and street improvements, and ways of meeting the future transportation requirements of an increasing population. The study consisted of an inventory of existing transportation data. Although it described the very limited public transportation system in operation at the time, it did not make recommendations to expand and improve the system.

In the spring of 1973, transit planning for Flagstaff was initiated by faculty and students at Northern Arizona University. As part of the UMTA's University Research and Training Grant, NAU engaged in several research activities that encouraged transit planning by the City Planning Department. Projects included: a land use study; a noise study; a study of residents' attitudes concerning public transportation; an origin-destination study; and a survey of employers and employees on providing public transportation to and from work.

The final report, entitled, "A Proposed Mass Transportation System for Flagstaff, Arizona" and issued in June 1974, stated that approximately 50 percent of of the Flagstaff population was made up a low income families, defined as people paying $1,500 per year or less for housing. The report suggested that Flagstaff needed a public transit system to provide accessible and economical service to the working population and to low-income and elderly groups. It recommended that the City seek UMTA funds for transit planning. The City Planning Department responded to the recommendation and requested the planning services of the Northern Arizona Council of Governments (NACOG) to prepare an application for a technical study grant from UMTA.

In March 1975 the regional planning agency, NACOG, received an UMTA Technical Studies Grant for Flagstaff, the first for the area, to determine if a significant need existed for public transportation and, if so, the best way of meeting it.

Goals

Many citizens of Flagstaff believe that a need exists for public transportation in the city. This belief stems from the fact that those who lack access to an automobile or some other form of transportation cannot take full advantage of available employment, health, shopping, social, and recreational opportunities. In addition, there is a feeling throughout the community that the increasing costs of owning and operating a private automobile and future constraints on energy resources would have a serious economic impact on the city if an alternative to the private automobile was not available.

General community goals and objectives for transit planning can be summarized into two categories: (1) a reduction in the costs of travel (economic, environmental and social), and (2) an increase in benefits which accrue from a superior transportation system in terms of convenience, acessability, alternatives.

Agencies

To coordinate planning by local governments, Arizona is divided into six regions, each of which has a regional council, which serves as the clearing house for A-95 reviews. NACOG, established in October 1971, is the regional council for communities in northern Arizona and encompasses Apache, Coconino, Navajo and Yavapai Counties and the City of Flagstaff.

A unique feature of the NACOG is that is manages and operates many social programs for the counties in its region. It receives funds from a number of federal sources such as ACTION, HEW, HUD, Department of Justice, Department of Labor, and OEO (now CSA). Additional funds are supplied by various state agencies and members when special projects are carried out. This broad base of funding gives NACOG much influence in the region.

The NACOG is also actively involved in planning with several organizations. The Arizona State Department of Transportation is the principal transportation agency in the state, but it has no formal role and only limited staff input in the technical study. The NACOG has worked with this agency in developing some short-range transportation programs as part of HEW programs for the elderly.

The Flagstaff Community Development Agency has planning, zoning, and housing departments. The Zoning and Planning Departments are responsible for streets, highways, and transit. There is coordination and exchange of staff among the three departments, and very little staff turnover.

Northern Arizona University (NAU) has been active in transportation planning, including mass transit, for several years. Since 1972 NAU has been receiving UMTA University

Research and Training funding to produce assistant transportation planners with a Bachelor of Science degree after four years of study.

Technical Studies Grants

The NACOG was the primary contractor with UMTA for one Technical Study Grant (Number AZ-09-0010) to determine the feasibility of local transit service for Flagstaff and to develop a short-range Transit Development Program. (See Table 21.)

The specific purpose of the study was to determine the feasibility of a transit system in Flagstaff that would serve the diverse needs of all city residents. Of particular concern were the transportation needs of university students, tourists, and various minority and special groups; e.g., the Navajo and Hopi Indians who live on the nearby reservations and travel to the city for shopping and entertainment; low-income people living in the city; the handicapped and elderly; and persons too young or otherwise unable to drive a car.

The study was completed in December 1975 by Alan M. Voorhees and Associates, The report, "Flagstaff Transit Feasibility Study," proposed a city-owned system that would be leased for operation, management, and maintenance to a private transit company. The plan would be implemented over five years. The city would purchase the necessary equipment and would provide policy guidance for the systems. Continued planning for the Transit Improvement Program would be the responsibility of a city transit coordinator, working with both the city departments and the local contractor. Three routes for the system and a 25¢ basic fare were proposed. Seven 20-30 capacity buses of "unit" type construction would be purchased in the first 5 years.

The total costs to Flagstaff (local capital and new operating costs) were estimated as follows: Year 1, $101,960 to $216,360; Year 2, $71,420 to $106,420; Year 3, $81,200 to $124,300; Year 4, $122,960 to $177,560; Year 5, $134,000 to $188,600.

The consultant recommended that the UMTA Capital Grant Program be utilized for capital purchases. Since Flagstaff's population is under 5 Operating Grants in meeting transit budget deficits. Part of the operating costs could be covered by operating revenues, but the remainder would have to come from a local funding program, such as a hotel and motel tax or a portion of revenue sharing funds.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

There are no formal agreements that define agency planning roles and responsibilities to accomplish the objectives of the Flagstaff Technical Study Grant. The City of Flagstaff sought the assistance of the NACOG because the regional agency was more capable of short and long-range transportation planning than the city and because it had a regional orientation. The City itself could not quality for a grant. The Arizona Department of Transportation, which has experience in transportation planning, was not suitable because of its highway and automobile orientation. Because NACOG did not have a functional transportation department or staff with experience in transit planning, the regional UMTA office required that a transportation mass transit planning consultant be retained for the study.

The NACOG planning staff carried out all of the project coordination and much of the technical work for the study in cooperation with Flagstaff officials, particularly planners in the Department of Planning, and the NAU researchers funded under an UMTA Research and Training Grant. The transit consultant supervised the planning process and supplemented the technical knowledge of the NACOG staff where necessary.

An unwritten working agreement exists between the NACOG and the City to delegate responsibility for short- and long-range transportation planning to the NACOG with input from the City. This agreement may change if Flagstaff is able to negotiate continuing Technical Study and Capital Grant funds.

Three NACOG staff members are professional planners. One urban planner and one engineer from the City of Flagstaff participated in this study. Two urban planners and one transportation planner from NAU participated. Representatives of the Arizona Highway Department who were active on the Flagstaff Area Transportation Study Committee served in an advisory capacity.

In order to upgrade in-house transportation planning capabilities, the NACOG and the City Department of Planning staffs took courses at NAU in transportation/mass transit planning and attended UMTA seminars.

The City of Flagstaff has not taken any other definite steps to improve transit planning capabilities because they are not sure how to generate local funds to implement a transit program. There are no funds in the city's general FY 1976-77 budget for transit. The Department of Planning has recommended to the City Manager that the local funding

share be obtained by taxing hotels and motels or revising the priorities on available revenue sharing funds.

New Capital Acquisitions

The Voorhees' feasibility study recommended purchase of seven 20-30 capacity buses of "unit type" construction. No other capital purchases are mentioned.

The City has not formally adopted the Transit Development Program or applied to UMTA for Capital Grant funds. Adoption of the TDP is viewed as a precursor to a local mandate to initiate Capital Grant requests. Currently anticipated inability to raise the local share of a Capital Grant, as well as lack of sufficient local expertise to prepare the grant application, are blocking the TDP adoption. The City Planning Department is trying to suggest acceptable taxation schemes to generate a local share. Acceptance of the proposed schemes will occur together with TDP adoption.

Institutional Climate

The NACOG and the City of Flagstaff have worked well together and through mutual cooperation have improved their transportation planning capability.

To provide for citizen participation and policy input in transportation planning in the Flagstaff area, the city has established technical advisory committee, the Flagstaff Area Transportation Study Committee, which reports to the City Council. Because this group has a strong highway and automobile bias, the city established a new special purpose citizen's advisory committee, the Citizen's Transit Advisory Committee, for the Technical Study Grant.

Citizens also were involved in other phases. The League of Women Voters selected the transit program as one of its principal projects and works hand in hand with the NACOG. It reworded the technical study in laymen's language and circulated 1,000 copies.

Furthermore, a household survey was conducted in 1973 by the Geography Department of Northern Arizona University, in conjunction with the City Planning Department, to determine the need for a public transit system. It showed that a majority of respondents contacted indicated a willingness to pay more taxes to support public transportation in Flagstaff.

Local officials feel that the political climate supported the Technical Study Grant research. They thought the study provided valuable information in transit needs, and produced technical data for the citizens and elected leaders to make a rational decision on the feasibility of

establishing a public transit system. The study moved the issue of a transit system from just "talk" and "guessing" to an arena for sound decision-making.

The elected officials also are satisfied, as demonstrated in the recent election. All candidates indicated to the voters that they supported a transit system but a decision on the best method to finance it has to be decided by the City Council.

Initially, the local newspaper gave the technical study little publicity, but as the study progressed to its conclusion, more positive articles appeared, supporting the need for a transit system.

The CBD merchants support the bus system, as they feel it will stimulate their declining businesses. The Chamber of Commerce is actively supporting the study.

The study was submitted to the Flagstaff City Council for final approval.

The UMTA planning requirements for the Capital Grant may be too overwhelming a task for the City and the NACOG to handle. To meet this problem technical support will be solicited from NAU in preparing the information needed to qualify.

Conclusions

Research supported by the Technical Study Grant has resulted in both direct and indirect benefits to Flagstaff. Among the indirect benefits were: better communications among students, residents, and elected and university officials; increased recognition of the value and difficulties of transit and planning; and increased involvement of citizens in government decision-making.

The direct benefits included the development of a transportation planning capability for transit by the City and NACOG; the integration of land use and development policy with transportation planning consistent with UMTA requirements; and the coordination of local (City of Flagstaff) and regional (NACOG) policies and plans.

See the summary matrix, Table 22.

TABLE 21. FLAGSTAFF - TECHNICAL STUDY GRANT

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| AZ-09-0010 | NACOG | $20,000 | 1975 |

TABLE 22. FLAGSTAFF - SUMMARY, IMPACT OF TECHNICAL STUDIES PROGRAM

Region IX

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9<br>Capital, Section 3 | 1 | 20K | 1975 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | | 5 | | x | | Technical Study Grant for feasibility study only. Flagstaff has no private or public transit system. |
| Operational | | | | | | | |
| Long Range | | | | | | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | | | | | | | |
| Garage/Maintenance | | | | | | | |
| Operational/Other | | | | | | | |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | | | | | | | |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | | | | | | | |
| Other | | | | | | | |
| Route Coverage | | | | | | | |
| Route Scheduling | | | | | | | |

## 5.11 HATTIESBURG, MISSISSIPPI

### Demographic/Socio-Economic Background

Hattiesburg is located in Forrest County in south central Mississippi, 60 miles north of the Gulf of Mexico, and 110 miles northeast of New Orleans.

Both Forrest County and Hattiesburg have similarly experienced consistent population growth. During 1960-1970 Forrest County's population increased 9.4 percent to 57,849. The county is 77.5 percent urban and has four incorporated communities having the following 1970 populations (population changes during 1960-1970 are shown in parentheses): Hattiesburg 38,277 (9.7 percent), Petal 6,986 (11.3 percent), Harvey 1,398 (8.9 percent), and Palmer's Crossing 1,093 (9.2 percent). Since 1900 Forrest County and each community have experienced an average decennial population increase of approximately 9 percent.

Although Hattiesburg is not an SMSA, the four contiguous communities approximate an urbanized area. Greater Hattiesburg has a low population density, 511 persons per square mile, evenly distributed throughout the communities' 74.3 square miles.

Forrest County's 24.8 percent black population is concentrated in the four communities, where 13,028 of the 14,332 blacks reside. However, the black population varies distinctly among the four towns: Hattiesburg is 29.1 percent black; Petal, 1.1 percent; Harvey, 0.5 percent; and Palmer's Crossing, 98.7 percent.

Mississippi's black population proportion of 43.8 percent is the nation's highest, and the state's urban population is 44.1 percent of its total. During 1960-1970 the state's population increased 1.8 percent. Since 1900 Mississippi has shown an average decennial increase of 4.1 percent.

Forrest County's economy is dependent upon Fort Shelby (an army base with 1,100 civilian employees), the University of Southern Mississippi (with 13,900 students), and William Carey College (with 2,200 students). The schools have 1600 nonstudent employees.

The current average annual family income in Forrest County is $12,783 among whites and $5,613 among blacks. Approximately 10 percent of white families have annual incomes beneath the poverty level but the proportion among black families is estimated at 50 percent.

## Transportation Characteristics

### Trip Characteristics

Because of Hattiesburg's low population density, trip distances are comparatively long. The two shopping malls, both colleges, and Fort Shelby are located near greater Hattiesburg. The average work trip distance is 5.0 miles; the average weekday shopping trip distance is 3.0 miles.

While 79.5 percent of U.S. households own at least one automobile, the proportion among Hattiesburg's residents is 65 percent and is estimated at 40 percent among blacks. The community has a substantial transit-dependent population. However, public transportation ridership is low. Hattiesburg's estimated modal split is 1.5 percent. Since 1960 transit patronage has declined 88 percent.

### Transit History

From 1946 to 1975 Mississippi City Lines operated a bus transit franchise in Hattiesburg. Beginning in 1960 MCL began experiencing consistent annual ridership reductions averaging 5 percent.

Hattiesburg had the last remaining segregated bus system in Mississippi with separate sections of a bus designated for blacks and whites.

In 1967 federal courts ordered MCL to desegregate all public transportation services. In 1968 transit ridership declined 37 percent. Whereas ridership was approximately 50 percent for each race until 1967, it has been predominately black since desegregation. Currently, it is 92 percent black. White ridership is exclusively from temporary residents, primarily Fort Shelby army personnel.

Operating deficits increased to 18 percent of the $400,000 operating budget in fiscal 1969. In January 1971 MCL notified Hattiesburg that the company would cease bus service on June 30, 1971. Hattiesburg negotiated with MCL and reached an agreement whereby the bus service was continued. An annual contract provided that Hattiesburg reimburse MCL monthly whatever deficit the company incurred plus $1,000 for operating the transit system.

This agreement was renewed each year through fiscal 1974, when the monthly deficit began approaching 50 percent of operating expenses. In March 1975 Hattiesburg notified MCL that the contract would not be renewed. Plagued by declining ridership and a rapidly increasing deficit, the community could not afford a public transportation system. All bus service stopped June 30, 1975.

Meanwhile, Hattiesburg's mayor and city council appointed a 32-member citizen's committee to recommend ways of reviving bus transit. According to the committee Hattiesburg should assume operation of the transit system and reduce bus service sufficiently that a "balanced" budget would be achieved. The budget would be composed of three components: bus fares, a specified direct subsidy from Hattiesburg, and funds from a proposed 1-mill allocation of the city's property tax to support transit.

Hattiesburg's mayor and city council granted a $50,000 annual subsidy from federal revenue sharing funds. On July 15, 1975 a referendum was held concerning the property tax issue. The proposal received a 60 percent voter approval. In September 1975 the Hattiesburg Mass Transportation Administration was established and bus service resumed October 18, 1975. Hattiesburg's mayor and city council compose HMTA's governing board.

## Transportation Planning Process

### History

The Southern Mississippi Planning and Development District, (SMP&DD) established in 1958, is an assistance agency for regional and community development planning in Mississippi's 18 southernmost counties. It is one of six similar districts which are

part of the Mississippi State Department of Planning and Development. The SMP&DD assists county and town governments to apply for federal grants of all types, providing information concerning grant requirements and application processes. However, all planning authority resides with local government. It is the particular community or county and not the regional planning district which actually applies for grants.

The planning district's role is entirely advisory. A Mississippi statute states that counties and incorporated communities have the authority to apply for, accept, and implement all federal programs related to public transportation. Another law permits incorporated communities to establish and operate a public transportation system. Mississippi also permits communities to allocate, upon voter approval, 1 mill from the property tax to support public transportation whether the transit corporation is publicly or privately owned.

Mississippi indicates no state public transportation planning role. There is no state DOT and the Mississippi Highway and Roads Department has no subdivision dealing with public transportation.

Goals

Public transportation planning in Hattiesburg focuses on serving the travel needs of Hattiesburg's large transit-dependent population while restricting deficit costs to the community. Goal implementation is problematic since transit ridership is low and resources to finance an operating deficit are limited. With a population of less than 50,000 Hattiesburg is not eligible for UMTA operating assistance.

Agencies

Since there are no specific agencies responsible for public transportation planning in Mississippi, the planning process is idiosyncratic to each community and dominated by local elected officials. Having begun the annual bus service contract with MCL in 1971, Hattiesburg's mayor and city council decided to apply for a Section 9 Technical Study Grant. It was felt that professional consultation and a transit options

study were needed to guide public transportation's future.

The Mayor and council handled grant application procedures, selected Wilbur Smith and Associates to conduct the planning study, and maintained all relationships with the contractor. Monthly meetings were held to solicit citizen input. After council approved a Transit Improvement Program, no further citizens meetings were held.

Until 1975, when bus service stopped, Hattiesburg had no mechanisms whatsoever for continuing public transportation planning. The 32-member citizens committee established during the transit crisis has no planning authority and does not meet regularly.

Technical Studies Grants

Hattiesburg has applied for and received one UMTA Technical Studies Grant. (See Table 23.)

Transportation Planning and Implementation

TIP implementation was scheduled to begin during fiscal 1972. There were four principal TIP recomendations: capital improvements, special transit services for elderly and low income persons, weekend bus service, and three new bus routes.

Hattiesburg did receive two Section 3 Capital Grants. In April 1973 Hattiesburg applied for a Capital Grant ($657,000) for purchase of 14 33-passenger buses and 1 mobile maintenance vehicle. The grant was approved September 1973. In April 1974 Hattiesburg applied for an UMTA Capital Assistance Grant ($130,000) for renovation of garage and maintenance facilities. The grant was approved October 1974. No other TIP implementation has occurred.

Escalating deficits and decreasing patronage required service reductions. In 1967 MCL operated 8 routes with 20-minute headways and operating hours were 6:00 a.m. to 10:00 p.m., Monday through Friday. Annual ridership was 1,125,000.

In 1976 HMTA operates 6 routes with 30-minute headways and operating hours are 7:00 a.m. to 6:00 p.m., Monday through Friday. Annual ridership is an estimated 140,000. Furthermore, the remaining bus routes have been shortened. The 8 MCL routes represented 84 one-way route-miles but the current 6 HMTA routes encompass 48 one-way route-miles.

HMTA has 8 full-time employees. Bus drivers are paid the federal minimum wage of $2.10 per hour.

Institutional Climate

Each year the level of bus service must be adjusted so that fare collections, the 1-mill property tax, and the city's $50,000 contribution from federal revenue sharing funds equal expected costs. Hattiesburg's mayor and city council have issued a policy statement saying that the appropriations from federal funds will not be increased during future years. Should revenue sharing be discontinued, Hattiesburg will not appropriate funds from general tax revenues to support public transportation. The 1-mill property tax guarantees HMTA $80,000 per year. However, the property tax allocation cannot by state law be increased beyond the present 1 mill.

Due to inflation the value of the fixed revenue sharing funds and property tax support actually decrease each year. Also, bus fare revenues are declining. In March 1976 transit ridership was 10 percent less than when bus service ceased July 1975. It is felt that increasing the 40 cent bus fare would further reduce ridership.

Since maintaining current service levels during fiscal 1977 would require a 10 to 15 percent budget increase, Hattiesburg anticipates further service cutbacks in July 1976. It is expected that the service day will be reduced to 8 hours: 7:00 a.m. to 11:00 a.m. and 2:00 p.m. to 6:00 p.m.

Public transportation in Hattiesburg is tenuous. TIP implementation is not possible since these service expansions would increase operating costs. With no change in revenue sharing allocations, continuation of the 1-mill property tax support, and no further ridership declines, it is estimated that inflationary increases in operating costs could eliminate all transit service in approximately 3 years.

## Conclusions

Hattiesburg is an example of a community where the institutional climate and general lack of citizen support for public transportation prevent the implementation of public transportation planning, yet forbid the complete elimination of all transit services.

See the summary matrix, Table 24.

TABLE 23. HATTIESBURG - TECHNICAL STUDY GRANT

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| MS-09-0003 | City of Hattiesburg | $37,500 | FY 72 |

# TABLE 24. HATTIESBURG - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region IV

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 1 | 37.5K | 1971 |
| Capital, Section 3 | 2 | 787.3K | 1973 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | | 5 | | x | | Except for capital acquisitions, program not implemented. |
| Operational | | | | | | | |
| Long Range | | | | | | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | | | x | x | 14 new 33 passenger buses purchased. |
| Garage/Maintenance | x | x | | | x | x | Garage/maintenance facility renovated. |
| Operational/Other | | | | | | | |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | | | | | | | |
| Handicapped & Elderly | x | | | | | | |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | x | | | | | | |
| Other | | | | | | | |
| Route Coverage | x | | | | | | |
| Route Scheduling | x | | | | | | Budget deficits and insufficient operating subsidies have required annual service reductions. |

## 5.12 LITTLE ROCK, ARKANSAS

### Demographic/Socio-Economic Background

The City of Little Rock, the State capital of Arkansas, is located in the central Arkansas county of Pulaski. Geographically, Little Rock is bounded by the Arkansas River to the north and the municipality of North Little Rock on the northern shore of the river. Little Rock, North Little Rock, the rest of Pulaski County, and part of Saline County constitute the Little Rock-North Little Rock SMSA, the main urban area in Arkansas, with 13 percent of the state population.

The 1970 SMSA population of 323,000 was an 18.9 percent increase from the 1960 population of 272,000. The 1970 population of Pulaski County was 287,189, including Little Rock (132,483) and North Little Rock (60,000). The growth of the SMSA has been concentrated in Pulaski County, which is estimated to have had an 8.9 percent growth rate between 1970 and 1975, and an estimated population of 315,442 in 1975. Little Rock has a relatively low population density of 2,509 persons per square mile with densities falling off rapidly outside the City.

The total SMSA employment of 122,266 (1970) is concentrated in manufacturing (20 percent), retail trade (15 percent), and health services (8.6 percent). Construction, public administration, and education each account for approximately 6 percent of the total SMSA employment.

### Transportation Characteristics

#### Trip Characteristics

The primary means of commuting in the Little Rock area is private auto, (approximately 94 percent of all person-trips) with taxis, school bus and walking trips making up most of the remainder.

Traffic congestion and lack of parking are not current problems in the Little Rock area. A recent study revealed that more than 87 percent of all work trips are less than 25 minutes in duration, and adequate parking facilities are available. The high rates of population growth and concomitant increases in vehicular traffic, however, are concerns for residents and transportation planners in the area.

Although transit accounts for less than 3 percent of all person-trips, 22 percent of all trips to and from the Little Rock CBD are made by public transit. The current patronage of public transit consists primarily of captive riders -- those lacking access to an automobile -- the poor, handicapped, elderly, and minorities.

The potential demand for public transit is substantial. Nearly 16 percent of Pulaski County households have no autos, with higher rates in Little Rock (18.4 percent) and North Little Rock (17.5 percent). Thirteen percent of the county population is over 60 years of age, and this rate also increases in Little Rock (15.5 percent) and North Little Rock (14.2 percent). The poverty population in the area is moderate with 18 percent of Pulaski County residents classified as poor in the 1970 census. Concomitantly, 18.1 percent and 19.1 percent of the Little Rock and North Little Rock populations were classified as poor in 1970.

Public transit service seemingly is not constrained by dispersion of employment and population locations. Fifty-nine percent of the SMSA population and 84 percent of all SMSA employment is concentrated in the cities of Little Rock and North Little Rock.

Transit History

Prior to April 1972 transit service in both Little Rock and North Little Rock was provided by a private operator, the Twin City Transit Company, Inc.

As with urban public transit throughout the U.S., ridership in the Little Rock area, including North Little Rock, declined throughout the 1960's. Between 1963 and 1969 the number of revenue passengers declined by 23.7 percent from 6,249,253 in 1963 to 4,766,412 in 1969. By 1971, the last full year of operation by Twin City Transit Company, ridership had declined by an additional 18.3 percent from its 1969 level to 3,894,781 revenue passengers.

As a private operator, Twin City Transit had no access to revenue sources to finance transit operations other than fare box receipts. As patronage declined, so did fare box revenues. In an effort to maintain fiscal soundness, fares were increased from 20 to 25 cents per passenger in 1969. Numerous service cutbacks were instituted. The replacement and upgrading of the vehicle fleet and equipment was neglected, and only one major purchase of new vehicles was made in 1967 with the aid of a HUD grant. The HUD grant also financed a comprehensive analysis of urban transit operations in the area.

By 1971, it was clear that Twin City Transit Company would soon be financially insolvent and forced to discontinue service. Little Rock, North Little Rock, and Pulaski County used their initial Technical Study Grant to hire the firm of Snavely, King and Tucker, Inc. to do a comprehensive analysis of urban transit with emphasis on ownership alternatives and a capital improvements program. Based on this study, and the subsequent TDP based on the results of this study, application was made to UMTA for a

Capital Grant to purchase the assets of the Twin City Transit Company in early 1972.

With funds from the three local governments and an UMTA Capital Grant, Metroplan, the comprehensive regional planning agency for the Little Rock-North Little Rock SMSA, purchased the assets of the Twin City Transit Company and created Central Arkansas Transit, Inc. (CAT). By agreement Metroplan was the trustee for Pulaski County, Little Rock, and North Little Rock in this action.

When Metroplan became the local transit operator (CAT), it contracted a private company to manage the transit system. The former vice-president and general manager of Twin City Transit created Metro Transit Management, Inc., (MAT) to manage the Central Arkansas Transit Company for Metroplan. The contract between MAT and Metroplan called for MAT to receive 3.7 percent of gross revenues for management services.

Following the creation of CAT, transit patronage continued to decline. By 1974, ridership had declined to 3,421,464 from the 1971 level of 3,894,781 or 12.1 percent.

The cost of operating and maintaining CAT increased by 28.8 percent from 1.397 million in 1972 to $1.799 million in 1975. Over the same period, operating revenues declined by 20.1 percent, from $1.234 million to $.976 million. Between May 1972 and December 1974 Pulaski County, Little Rock, and North Little Rock contributed $1,491,410 for capital and operating assistance for CAT. During 1975, these local governments provided $411,313 for CAT, while the actual operating deficit for the year was $822,625.

Metroplan has initiated corrective action to reverse the decline in CAT's patronage. During 1973 and 1974, a number of studies and surveys were conducted of the transit system operations, management, riders, and the urban population at large. In 1974, Sunday and evening service was rescheduled, and seven routes were reduced to five. In 1975, adult fares were increased from the 30¢ (25¢ children, 10¢ off-peak elderly) level established in 1972 to 35¢.

In August 1975, following a comprehensive CAT management study by a consultant group (Harbridge House), a new transit management team was introduced for CAT. Metroplan contracted National City Management Company to provide operational management for CAT and its 78 vehicles for three years. National City Management Company established a local subsidiary, Central Arkansas Transit Management, to manage CAT.

After considerable study and analysis of existing service and patronage patterns and public forums to discuss the restructuring of services, a total system realignment

and a revision of all schedules were initiated. The completely restructured system began operating in May 1976. Essentially, it is a reduced transit service in that total route mileage was reduced from 270 to 142, and the number of routes was reduced from 16 to 15. However, service has been reduced by less than these figures suggest by restructuring existing routes and schedules. In some neighborhoods in the 62.5-square mile operating area new service is available, and schedules on all routes are coordinated to facilitate transfers and commonality.

## Transportation Planning Process

### History

Transportation planning in the Little Rock-North Little Rock region was initiated with the Pulaski Area Transportation Study (PATS) in 1964. The PATS resulted from the need for long-range highway plans and programs and the requirement for a continuing, comprehensive, and cooperative transportation planning process to maintain eligibility for Federal Highway Assistance. Prepared by Metroplan and the consultant firm of Wilbur Smith and Associates, the study produced a "Highway Transportation Plan and Implementation Program" with a 25-year horizon. It contained an inventory of existing transit service in 1964, but no formal transit planning elements.

In 1968, with the assistance of a HUD grant to the Cities of Little Rock and North Little Rock, arrangements for a short-range transit analysis and long-range policy plan were made. Metroplan executed the study, and Barton-Aschman Associates were selected as consultants. The Barton-Aschman report contained the first comprehensive analysis of the transit system. A product of this study was the purchase of 42 new buses (by Little Rock and North Little Rock), which Twin Cities Transit used to replace vehicles of World War II vintage. This study also began the first attempt to integrate transportation planning with conprehensive land use planning.

When it became apparent in 1970 that Twin Cities Transit was experiencing severe financial difficulties, Metroplan applied for and received its first Technical Study Grant (AR-09-0001) from UMTA in November 1970 to assess the financial management, and operations planning, programming, and ownership alternatives for continuing transit services. Snavely, King and Tucker, Inc., were consultants on this study, and their final report, published in May 1971, recommended a 5-year capital improvement program and that a public agency operate the transit system.

On the basis of this report and a TDP prepared using this data, Metroplan applied for and recieved an UMTA Capital Grant of $2.435 million (staged over a 5-year

period), to purchase the assets of Twin City Transit Company, initiate CAT (1972), and upgrade the bus fleet with new vehicles and shelters.

These studies projected optimistic transit ridership and revenues. Over the ensuing years fuel, labor, maintenance, and insurance costs escalated at a pace few could have predicted, and local governments were unable to provide adequate matching funds. As a result, the TDP that had been prepared in 1972 and the planning and programming contingent on it soon were inoperative.

A second Technical Study Grant (AR-09-0002) to Metroplan initiated a continuing program of transit planning by Metroplan in coordination with the Arkansas Highway Department. Long-range transit planning was integrated in the multi-modal transportation planning activities of PATS. Short-range transit programming was continued by Metroplan. A continuous updating of the 1972 TDP was begun, and the professional transportation planning staff expanded.

Intermodal transportation planning, coordinating the transportation systems planning of the Arkansas Highway Department and transit planning of Metroplan, was initiated in 1973.

The most recent Technical Study Grant (AR-09-0004) and its amendment (AR-09-0004(1)) have supported the continuing program of transit planning and programming by Metroplan during fiscal year 1975 and 1976. Because CAT has been operating under increasing financial constraints, the emphasis has been on short-range transit management and finance. A study of transit operations and policy by Harbridge House (supported by AR-09-0004) resulted in management and policy changes, with a new contract for operational management of CAT negotiated and taking effect in August 1975. Studies of CAT operations, routes, surveys of passengers, and financial analysis resulted in a complete restructuring of service in May 1976.

Goals

Metroplan is attempting to maintain a fiscal balance between costs of providing transit service and the needs for service. This requires a focus on short range efforts to maintain system viability.

Agencies

Metroplan is the regional council of governments and comprehensive planning agency in the Little Rock-North Little Rock SMSA. As the title holder of all assets of Central Arkansas Transit, the public transit system, Metroplan is the transit operator for Little Rock-North Little Rock area. Day-to-day operational management of the

system has been contracted to a professional transit management firm, National City Management Company, which has home offices in Houston. National City Management Company created a subsidiary in Little Rock, Central Arkansas Transit Management, to manage CAT.

Membership in Metroplan consists of Pulaski County, the cities of Little Rock, North Little Rock, and Sherwood, and other local governmental bodies. The organization policy is determined by a Board of Directors consisting of elected and appointed officials from participating governments. Metroplan has been designated the Areawide Planning Organization (HUD), the regional A95 Review Agency, and the Metropolitan Planning Organization (DOT and State of Arkansas).

The Transit Policy Board within Metroplan, a five-person committee of the Metroplan Board of Directors, meets monthly. The Transit Policy Board was created when Metroplan acquired the assets of Twin City Transit and initiated public transit service in 1972. Current membership of the Transit Policy Board consists of the county judge, the mayors of Little Rock and North Little Rock, a director of Metroplan, and a private citizen. The Secretary of Metroplan is the Executive Director of CAT. Metroplan and CAT share planning and administrative staff.

By interagency agreement, continuing transportation planning is the shared responsibility of Metroplan and the Arkansas Highway Department and is effectuated in the continuing phase of the PATS. The PATS is supervised by a 19-member PATS Coordinating Committee, which meets at least semi-annually. There is a Citizens Advisory Committee with citizen representatives appointed by local, public, and private agencies. There are also various PATS technical subcommittees.

Technical Studies Grants

Three Section 9 Technical Studies Grants totaling approximately $158,400 have been received by Metroplan (see Table 25). This includes an extension and amendment of the most recent grant (AR-09-0004) for fiscal year 1975 to cover activities for the current fiscal year.

The first Technical Study Grant (AR-09-0001) for $20,640 was received in November 1970. The purpose of this study was to assess (public) ownership alternatives for transit operations, to develop a capital improvement plan for transit, and to evaluate the financial and management aspects of the transit system.

The firm of Snavely, King and Tucker, Inc., helped prepare this study for Metroplan. Based on their final report (May 1971), a TDP was prepared by Metroplan and a

Capital Grant awarded to Metroplan by UMTA to purchase the assets of Twin City Transit and initiate CAT, the public transit service.

In May 1973 Metroplan received an UMTA Technical Study Grant (AR-09-0002) of $56,000. This award supported transit planning and programming from May 1973 to June 1974 (last quarter fiscal year 1973 and fiscal year 1974).

The studies supported by this grant included:

Preparation of a transit element for the 1995 Pulaski Area Transit Study
Updating of the 1972 TDP
Short-range transit programming

A third Technical Study Grant (AR-09-0004) for $45,750 was awarded to Metroplan in July 1974. The grant supported the continuing program of transit planning and programming for fiscal year 1975. Among the significant products of this grant were:

A study of Metroplan transit activities by Harbridge House Consultants
An onboard origin-destination study on CAT's buses.

The third grant was amended in July 1975 to cover fiscal year 1976 (AR-09-0004(1)). The amendment increased the award by $36,000 (for a total of $81,730). It supported the continuing coordinated program of transportation planning (PATS) by Metroplan and the Arkansas Highway Department.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Before 1967 transportation planning in the Little Rock-North Little Rock metropolitan region consisted of planning for highways and expressways. The creation of a regional planning agency, the Metropolitan Area Planning Commission (Metroplan's predecessor), in 1955 resulted from the need to develop plans for a high speed highway linking the Little Rock Air Force Base in Jacksonville with the Cities of North Little Rock and Little Rock. This regional planning perspective was supported by the Department of Defense.

The Metropolitan Area Planning Commission, which in 1970 became the regional council of governments known as Metroplan, and the Arkansas Highway Department have jointly cooperated in preparing long-range highway plans for the region since the 1964 initiation of the PATS. The study did

not include long-range planning or short-range programming for transit.

A HUD grant to the Cities of Little Rock and North Little Rock in 1967 initiated short-range programming for transit. The grant resulted in a capital improvements program and the purchase of 42 vehicles to replace old ones. The studies and analyses performed under this grant were prepared by private consultants under contract to Metroplan (then the Metropolitan Area Planning Commission). Thus, the study did not result in an increased proficiency for transit planning and programming by any of the local agencies involved in transportation planning and programming; e.g., Metroplan, The Arkansas Highway Department, or Twin City Transit.

In 1971 with the impending end of Twin City Transit Company, Metroplan received its first Section 9 Technical Study Grant, which was carried out by a consultant. A subsequent Capital Grant enabled Metroplan to purchase the assets of Twin City Transit and initiate public transit operations in April 1972 with Central Arkansas Transit (wholly owned by Metroplan).

The continued development of transportation planning capability, particularly by Metroplan, can be credited primarily to the Technical Studies Grants Program. The limited fiscal capacities of local governments and Metroplan make it unlikely that future transportation planning activity could be supported locally.

New Capital Acquisitions

Three important stages of transit capital improvement activity can be discerned in the Little Rock-North Little Rock area. The first phase was the period prior to the initiation of public transit involvement by Metroplan (1971). Because of increasing deficits, the private transit operator, Twin City Transit, was unable to make significant efforts to upgrade or expand the vehicle fleet. Only in 1967, with the assistance of a HUD grant, were 42 new vehicles purchased by the cities of Little Rock and North Little Rock and leased to Twin City Transit to replace an equivalent number of buses of World War II vintage.

With the first Technical Study Grant to Metroplan in 1971, a new stage of capital upgrading and expanding was begun. The 5-year capital improvements program suggested by the study was integrated in the initial TDP in 1972, and then became the basis for a Section 3 Capital Grant request by Metroplan. The grant (AR-03-0001) for $2,435,294 provided finances for Metroplan to acquire the assets of Twin City Transit (including bus fleet), purchase 44 new vehicles to upgrade and enlarge the bus fleet, and acquire land and construct a parking and maintenance facility. This

phase was short-lived, however, for by mid-1973 with ridership and operating costs escalating, local governments, (Pulaski County, the City of Little Rock, and the City of North Little Rock) with financial problems of their own, could not subsidize operations and provide the Capital Grant. Consequently, only 18 of the 44 vehicles scheduled for acquisition were actually purchased. Plans for the garage and maintenance facility were postponed, and the remainder of the Capital Grant ($1,721,326) was returned to UMTA in early 1976.

State provisions limit the taxing ability or municipalities in Arkansas to a 5-mill property tax on a 20 percent assessment and various non-fully-compensating user fees and changes. Because of this, local governments operate under tight fiscal conditions and face problems meeting their own financial obligations.

Since 1973 there have been no requests for UMTA Section 3 Capital or Section 5 Operating Grants. Declining public transit patronage, the lack of local funds to meet matching requirements, and growing operating deficits make maintaining present services or reducing them a planning priority rather than expansion. Even with Section 5 entitlement provisions, it will be difficult to raise the necessary 25 percent in local matching funds.

New or Improved Services With Existing Facilities

In the context of limited resources for transit that has prevailed since 1973, Metroplan has emphasized the optimal use of existing facilities. The two most recent Technical Studies Grants (AR-09-0002 and AR-09-0004 as amended) have emphasized short-range transit planning and programming exclusive of capital improvements.

In 1974, sensing the need for an impartial and thorough analysis of transit policy and operations, Metroplan used funds from Technical Study Grant AR-09-0004 to contract for a review which resulted in sweeping policy and management reforms, including a new contract for day-to-day operational management of CAT. The previous operator had several shortcomings and seemed unresponsive to the need for user-oriented reforms in transit service and scheduling and operational efficiency. It is too early to tell whether the new management will improve transit operational management. The new operator, Central Arkansas Transit Management, assumed responsibility in August 1975.

The continuing program of transit planning initiated in 1973, and supported primarily by Technical Studies Grants since then, has undertaken various analyses of finance, operations, patronage travel patterns, and regional demographic trends. These analyses culminated in the total

restructuring of transit service in May 1976, after considerable planning, including public hearings on the proposed changes. Once more it is too early to evaluate the impact of these changes.

The recent service restructuring was mandated by a need to cut operating deficits by reducing the scale of transit operations. Since the service structure prior to May 1976 had evolved incrementally from the high passenger volume services of the 1940's and 1950's it had many inefficiencies. The recent comprehensive restructuring of service, while in fact a reduction in scale of operations, may not actually reduce service to potential and actual patrons proportionately. The studies of transit patron travel patterns (on-board O-D surveys), coordination of route schedules to facilitate transfers, timing of services, rerouting of existing routes, and computer-simulated and optimized routing, all supported by Technical Studies Grants, may optimize the use of existing facilities and resources.

New express bus services, including park-and-ride facilities, and a new downtown shuttle, funded in part by businesses in the area, mirror attempts since 1973 to market non-capital-intensive innovations in transit service. Finally, alternatives for increased services to the elderly and handicapped are being explored by Metroplan and CATS in conjunction with various social services agencies.

Institutional Climate

The institutional structure for transportation planning, programming, and operations is unusual when analyzed from a national viewpoint.

Metroplan is the single public agency with comprehensive responsibility for both long-range regional planning and short-range programming and operational responsibility for public transit. The national trend has been to separate institutions, designating one to undertake regional transportation planning, and another to do day-to-day transit operations and short-range programming.

Although multimodal transportation planning is jointly undertaken by Metroplan and the Arkansas Highway Department in the continuing Pulaski Area Transportation Study (PATS), it is clear that primary responsibility for transit elements rests with Metroplan. With the exception of providing computer facilities for systems analysis activity needed by Metroplan, the participation of the Arkansas Highway Department in activities funded by UMTA technical studies grants is minimal.

The distinction between long-range planning and short-range programming for transit has been difficult to

maintain, as a fiscal crisis has made the maintenance of public transit for the immediate future the first priority. In this atmosphere short-range programming understandably takes priority over longer-range considerations.

The lack of a permanent, reliable, earmarked source of local funding for transit planning, programming, and operations is critical. This is particularly true with the need for funds to bridge the gap between operating revenues and operating costs. Currently local governments appropriate yearly sums to subsidize CAT deficits and then must make additional appropriations throughout the year, as operating deficits repeatedly have exceeded projected levels.

With fiscal problems of their own because state legislation limits local property taxes to 5 mills on 20 percent assessments, local governments are increasingly unable to further subsidize transit. Thus Metroplan has found that once operating deficits are met there is little left to use as local matching funds for Section 3 Capital Grants, Section 9 Technical Studies Grants, and, most recently, entitlement capital and operating assistance (Section 5). As a result, full local participation in these UMTA programs is limited.

Metroplan directors think that the organization must take on increasingly affirmative stances on issues of regional significance, including transit. They note that public awareness and concern for transit is limited by a general lack of information. This, they hold, is the result of a largely professionally oriented consideration of these issues within Metroplan. Local politicians and citizens simply are not fully appraised of, and therefore do not understand, the significance of regional transit planning.

## Conclusions

The resources provided by Technical Studies Grants have been critical to the transit planning and programming acitivites of Metroplan, the regional council of governments, MPO, and transit operator.

The results of the grants have been of varying value with respect to transit planning and programming. The initial Technical Study Grant resulted in optimistic projections concerning the patronage and fiscal future of public transit. This study was prepared largely by consultants rather than Metroplan staff.

Subsequent technical studies have facilitated the evolution of a professional transportation planning, capability, (including transit), by Metroplan. The products of these latter studies, both of those performed in-house

and by consultants, have improved over earlier products. These latter studies have been primarily oriented to short-range transit programming and instrumental to recent management and comprehensive service changes.

Local fiscal conditions, including the lack of earmarked revenues for transit operations, planning, and programming, and the increasing transit operating deficits, have necessitated recent service reductions. These local fiscal conditions also limit the available resources for meeting local matching funds requirements of UMTA grant programs.

See the summary matrix, Table 26.

TABLE 25. LITTLE ROCK - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| AR-09-0001 | METROPLAN | $20,632 | FY71 |
| AR-09-0002 | METROPLAN | 56,000 | FY73-FY74 |
| AR-09-0004 | METROPLAN | 45,750 | FY75 |
| AR-09-0004-1 | METROPLAN | 36,000 | FY76 |

# TABLE 26. LITTLE ROCK - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region VI

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 4 | 217K | 1970 |
| Capital, Section 3 | 1 | 2.4M | 1972 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 3-5 | x | | x | MPO is operator; contracts for transit management. |
| Operational | x | x | 3-5 | | x | | |
| Long Range | x | | | x | | x | |
| Modelling | x | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | 5 | x | | x | |
| Garage/Maintenance | x | | 5 | x | | x | Lacked sufficient matching funds to implement. |
| Operational/Other | x | x | | | x | | Contract management. |
| Park and Ride | x | x | | x | | x | Partial implementation and funded by local businesses. |
| **Service Improvements** | | | | | | | |
| Special Services | x | x | | x | | x | Downtown shuttle funded by local businesses. |
| Handicapped & Elderly | x | | | x | | x | |
| Demand Responsive Management | x | x | | x | x | x | Harbridge House management study influenced operational management. |
| Marketing | x | | | x | | x | |
| Other | | | | - | | | |
| Route Coverage | x | x | | x | | x | System realignment, route revisions, public input used to do this. |
| Route Scheduling | x | x | | x | | x | Major schedule revisions, service improved. |

## 5.13 MANCHESTER, NEW HAMPSHIRE

### Demographic/Socio-Economic Background

Manchester is located in south-central New Hampshire, 55 miles north of Boston and 40 miles west of Portsmouth, which is on the Atlantic coast. Although Manchester is the state's largest SMSA and city, the community is characterized by comparatively slow population growth. New Hampshire's population grew 21.5 percent during 1960-1970, and the average population for small SMSA's with a 1970 population less than 200,000 increased 12.7 percent; but the Manchester SMSA population increased only 1.4 percent to 107,679. Manchester city's population declined 0.7 percent to 87,362, compared to a U.S. average central city growth of 4.2 percent for small SMSA's.

Manchester's population is distinctly concentrated. The urbanized area contains 88 percent of the SMSA's residents; the U.S. average is 43.8 percent. Density is 2,339 persons per square mile in the 39 square mile area.

Employment is a mixture of manufacturing (33.5 percent) and white collar (24.6 percent) jobs generally dependent upon the textile and shoe industries that compose the area's economic base.

### Transportation Characteristics

#### Trip Characteristics

Travel distances in Manchester are relatively short. The average work trip is 1.8 miles and the average weekday shopping trip length is 1.2 miles. Interstate 93, the Daniel Webster Highway, and Everett Turnpike form a beltway of sorts that interfaces with a system of main thoroughfares. However, the community does have a substantial transit-dependent population, since 23.7 percent of the households do not own an automobile, 12.2 percent of the residents are aged 65 and older, and 11.7 percent have an annual income of less than $4,000.

#### Transit History

Prior to 1973, public transportation was operated by Manchester Transit Incorporated, a subsidiary of the Union St. Railway Corporation. From 1955-1972, ridership declined 62 percent. Manchester's estimated modal split was 14.7

percent in 1960 but only 5.8 percent in 1972. Patronage was primarily composed of transit-dependent persons using bus service for necessary trips.

Public transportation is now provided by the Manchester Transit Authority, which operates 29 50-passenger buses. There are 22 regularly scheduled routes that service the approximate dimensions of the urbanized area including all of Manchester and the urban portions of Bedford, Hooksett and Londonderry. Approximately 90 percent of route miles and 95 percent of patronage occurs from within Manchester city limits.

The MTA is owned by Manchester city and was incorporated May 1973 as the first step in TDP implementation. The transit system is managed under contract by American Transit Enterprises (ATE) of Cincinnati. Manchester's mayor and city council appoint the MTA's five member governing board.

The MTA fiscal 1976 deficit is $396,000, approximately one-half of the total annual operating expenses. The deficit is subsidized equally by general tax revenue and UMTA "Section 5" funds.

Since the MTA's establishment in 1973, ridership has increased 20 percent, with 2.5 percent more route-miles traveled, and the modal split is currently 7.1 percent. Not only are transit-dependent persons employing public transportation more frequently, but a distinct shift from auto to transit is evident. While 69 percent of MTI's 1972 ridership did not have a drivers license, the proportion of MTA riders lacking a license in 1976 declined to 50 percent. Persons residing in a household which did not own an automobile characterized 32 percent of MTI patrons in 1973 but only 20 percent of the current MTA ridership. Persons either over age 45 or under age 16 represented 68 percent of MTI ridership and now account for 60 percent of MTA passengers. These ridership increases were achieved from various TDP implementation programs during the period June 1974 through February 1976.

## Transportation Planning Process

### History

The Southern New Hampshire Planning Commission (SNHPC), established in 1964, is responsible for transportation, land use, and community development planning in New Hampshire's six southern most counties. These counties are: Cheshire, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan. The region's 597,000 residents account for 77

percent of the state's population. The SNHPC, a division of New Hampshire's Office of Comprehensive Planning, became the designated agency for all transportation planning actvities in 1973. The Commission is authorized to secure federal funds for conducting technical planning studies and implementing capital improvements.

The planning and implementation process for public transportation is entirely local, since New Hampshire does not have a state DOT. There is a New Hampshire Department of Public Works and Highways, but it lacks a subdivision dealing with public transportation. A 1963 state statute permits communities with more than 10,000 population to operate a bus transit system. A 1969 law enables communities to accept federal funds for public transportation and exempts bus transit systems from all state regulation.

## Goals

The SNHPC's principal goal for public transportation planning is to promote the development of viable public transportation systems for southern New Hampshire communities. The Commission assesses local public transportation needs, proposes plans, and implements programs to meet these needs. Relying upon community input, the Commission directs the planning process so that communities develop need-responsive and financially stable public transportation systems.

## Agencies

The SNHPC has established two committees, technical and policy, for transportation planning in the Manchester SMSA. The Technical Committee develops community transportation goals and planning alternatives. It is composed of SNHPC Office Staff; NH Office of Comprehensive Planning; Manchester Highway Department; NH Department of Public Works and Highways; Federal Highway Administration; Manchester Transit Authority; Manchester Airport Authority; NH Aeronautics Commission; Federal Aviation Administration; NH Public Utilities Commission.

The Policy Committee studies Technical Committee recommendations and adopts an annual UWP to implement transportation planning.

The Manchester Transit Authority's five member governing board develops public transportation goals and suggests implementation programs to the Technical and Policy Committees. The SNHPC acts on MTA proposals and

incorporates recommendations for Section 9 Technical Studies Grants and Section 3 Capital Grants into the UWP.

All grant applications are made by the SNHPC. The MTA is then the Commission's administering agency for implementing public transportation planning. The SNHPC also sponsors quarterly citizens meetings to solicit input from the general public about transportation planning.

The SNHPC is an area-wide planning agency, but the public transportation system is owned, managed, and funded by the city of Manchester. However, the relationship between the SNHPC and Manchester is characterized by close cooperation. Through frequent formal meetings and much informal contact, agreement is achieved among Manchester city officials, the MTA board, MTA management personnel, and the SNHPC Committees. The decision making process is consensual.

The SNHPC's structure for public transportation planning permits Manchester to direct the planning process. Approximately two-thirds of both the Policy and Technical Committee membership are Manchester residents who are either directly or indirectly appointed by Manchester's mayor and aldermen.

### Technical Studies Grants

The SNHPC has applied for and received three Section 9 Technical Studies Grants. Table 27 describes the purpose, cost, and duration of each grant.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

All continuing planning studies for the MTA are conducted by the SNHPC's research staff. There are three types of annual planning activities: passenger survey, community survey, and technical management data collection. The passenger survey interviews 1,000 MTA patrons on buses and at bus stops while the community survey is a mail questionnaire sent to 1600 households. The passenger survey addresses better ways to meet the transit needs of current riders. The community survey focuses upon developing services to attract non-riders. Technical management data concern passenger counts and schedule time deviation checks.

The MTA thoroughly relies upon the SNHPC for continuing planning activities. The relationship is characterized by close cooperation. Manchester demonstrates the MPO's

important role for a small transit system that cannot be expected to develop internal planning capabilities.

The MTA consistently employs the SNHPC's studies to improve bus operations. Both the passenger and community surveys were the basis for restructuring all 16 bus routes and adding 6 new routes. The technical management data are employed to revise annually route fleet requirements and change published schedules. In contrast, the previous MTI had neither revised routes nor changed schedules in approximately 30 years.

New Capital Acquisition

Maintaining reliable bus service requires a dependable, well-maintained bus fleet. It is estimated that a daily average of 90 percent of MTA buses operate from 1 minute ahead to 3 minutes behind schedule. The MTA primarily attributes service reliability to the replacement of all bus-related equipment and facilities from two UMTA Capital Grants. These grants were used to purchase 29 buses, 2 maintenance vehicles, and 650 bus stop signs. In June 1974, the new buses began service.

To provide the first effort at marking bus stops since MTI abandoned the practice in the 1930's, 650 bus stop markers were purchased. In January 1976, the MTA moved to a new maintenance garage and operations headquarters building. The structure provides shelter for the bus fleet and equipment for washing and painting buses, as well as a drivers' lounge and dispatch center.

In contrast the MTI's 45-bus fleet had an average age of 28 years. The daily operating requirement was actually 18 vehicles. However, breakdowns were so frequent that a 60 percent reserve fleet was required. Contributing to maintenance problems was the fact that MTI buses were stored outside. New Hampshire winter averages 120 days per year when the mean daily temperature is below freezing.

New Or Improved Services With Existing Facilities

The MTA has implemented a three-component program for facilities utilization: a new fare system, new services, and marketing.

The MTA reduced bus fares from 30 to 25 cents. Books of 10 tickets are sold for $2.25. Persons under age 18 ride for 15 cents during all hours of operation. Persons age 65 and older ride for 15 cents during off-peak hours, 9:00 a.m. through 3:00 p.m.

The DASH Zone (Downtown Area Short Hop) provides free bus transit along the CBD's main thoroughfare. Persons may board any bus operating in the zone, which is 1.2 miles long. Current ridership is 8,500 passengers per month. This represents 9 percent of total ridership.

Six special commuter bus routes provide round trip travel for work. Commuter buses make limited residential stops and carry passengers directly to major industrial sites. Daily ridership is 700.

Citizen groups and civic or charitable organizations may charter MTA buses during off-peak hours, Monday through Friday, and all day Saturday or Sunday. Cost is limited to drivers wages and fuel. Charter service began November 1975. It is hoped that an average of two trips per week can be achieved by Summer 1976.

The MTA expects to implement a loop service, one route for youth and another for elderly, during fiscal 1977. The youth route will provide transit to adolescent recreational activities during evenings while the elderly route will transport senior citizens to recreational activities and medical services during daytime hours.

The MTA has initiated an extensive marketing campaign to stimulate community awareness about public transportation. Bus schedules are available at 25 downtown stores and 40 places of employment. Schedules are also consistently available on each MTA bus. The 650 bus stop signs each show schedules for routes passing the stop. Twice weekly newspaper advertisements appear in the Manchester Union Leader. There are also advertisements broadcast on two Manchester radio stations 12 days per month. In directing efforts to ethnic groups information about MTA services is published in French, Greek, and Spanish.

All telephone or written complaints concerning bus service are answered within 48 hours by a letter, phone call, or home visit from the MTA's general manager. Furthermore, the general manager rides the transit system one half day per week interviewing patrons for suggestions about improving services.

## Institutional Climate

MTI was a private corporation. With declining revenues and no subsidies its antiquated equipment could not be replaced. Poor service reliability and failure to mark bus stops detracted from its ridership. Further, MTI tended to operate in isolation from the community.

By contrast, the MTA is a new institution in a new institutional climate which is concerned with operating interactively with the community. In 1973, Manchester concluded that public transportation was necessary for the community's economic well being. It was further decided that a public corporation was required, and the need for deficit financing was recognized. The transit system's stability is dependent upon stimulating ridership and maintaining support from the public, Manchester's city government, and the business community. The MTA's institutional climate addressess demonstrating to each segment that public transportation is fundamental to the community and that the MTA is doing its job well.

Public transportation has succeeded in Manchester by demonstrating to city officials and the community that the MTA is consistently responsive to the community's transit needs while striving to be financially stable. Employing findings from the annual planning studies to restructure bus routes, expand regular service, and add new services demonstrates to the public that the MTA is need-responsive. Stimulating ridership indicates to the city of Manchester that the MTA is endeavoring to generate additional revenues, thus reducing the tax dollars required for deficit financing. New services such as the commuter bus routes, DASH zone, and the planned loop routes demonstrate the benefits of public transportation to the business community. The MTA's comprehensive and aggressive marketing program is designed to maintain support from each segment in the community.

An important indicator of the MTA's success in Manchester's institutional climate for public transportation is the 20 percent ridership increase during 18 months. Transit-dependent persons, as well as those with access to an automobile, are employing public transportation more frequently. Furthermore, the city and the business community are apparently satisfied with the system's performance. The Annual MTA deficit is less than was expected. Currently, the city and the Chamber of Commerce are negotiating for several industrial plants to relocate in Manchester. An important component of the city's campaign is that Manchester has a viable public transportation system which is responsive to the business community's needs.

## Conclusions

Manchester provides a demonstration of a successful public revitalization of a failing private transportation system. Particular strengths are evident concerning the planning and implementation process, the marketing of public transportation, and maintaining relationships with the

community. There is a consistent relationship between community needs, planning, and implementation. The MTA's activities indicate the scope of innovative services which a small transit system can implement to meet a community's transit needs. Manchester also demonstrates a way of marketing bus transit to stimulate ridership and maintain active support from municipal government and the business community. The MTA's efforts have reversed a long-term ridership decline and produced a 20 percent patronage increase. It is especially significant for Manchester, where trip distances are short and the community is easily accessible by automobile.

See Table 29, the Summary Matrix.

TABLE 27. MANCHESTER - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| NH-09-0001 | SNHPC | $51,000 | FY 73 |
| NH-09-0002 | SNHPC | 50,000 | 1974-75 |

# TABLE 28. MANCHESTER - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region 1

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 3 | 101K | 1972 |
| Capital, Section 3 | 2 | 3.1M | 1973 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | x | x | | TDP implementation began July, 1973. Voorhees prepared initial plan which MPO updates annually. |
| Operational | x | x | | x | | x | Management collection of passenger count and schedule keeping data. |
| Long Range | | | | | | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | | x | | | 19 new 33 passenger buses delivered June, 1974. |
| Garage/Maintenance | x | x | | x | | | New facility operational January, 1976. |
| Operational/Other | x | x | 3 | x | | x | 350 Bus stop signs, 100 hus shelters will be installed - FY77. |
| Park and Ride | | | | | | | |
| **Service Improvements** | | | | | | | |
| Special Services | x | x | | x | | | Commuter routes established for work round trips. |
| Handicapped & Elderly | x | | | | | | FY77, the first of four loop routes elderly service will begin. |
| Demand Responsive | | | | | | | |
| Management | x | x | | x | | | New management organization began May, 1973. |
| Marketing | x | x | | x | | x | Extensive marketing program is focus for MTA efforts to stimulate ridership. |
| Other | x | x | | x | | x | Subscription service, fare free zone in CBD, loop routes for youth planned. |
| Route Coverage | x | x | | x | | x | All routes revised, several extended and three new routes initiated. |
| Route Scheduling | x | x | | x | | x | Schedules revised (semi-annually). |

## 5.14 OMAHA, NEBRASKA

### Demographic/Socio-Economic Background

The City of Omaha is located in Douglas County in northeastern Nebraska. Bordered by the Missouri River on the east, Omaha faces the City of Council Bluffs on the eastern bank of the river. Although Council Bluffs is in Pottawattamie County, Iowa, the two cities are economically, physically, and socially interdependent. Douglas and Pottawattamie Counties, along with Sarpy and Washington Counties in Nebraska and Mills County, Iowa, jointly compose the Omaha-Council Bluffs Standard Metropolitan Statistical Area.[1]

The Omaha-Council Bluffs SMSA population was 540,143 in 1970 and 458,600 in 1960. Between 1960 and 1970 the SMSA population increased by 17,870. The average annual growth rates of Sarpy, Douglas, and Pottawattamie Counties during the decade were 7.8, 1.3, and .5 percent, respectively. The high average annual growth rate in Sarpy County is attributed to the sprawl of urban growth to the south of Omaha.

The cities of Omaha and Council Bluffs had 1970 populations of 347,300 and 60,300, respectively. Between 1960 and 1970 the population of Omaha increased by 15 percent. It is evident that the growth of the SMSA is proportionately greater outside the central city of Omaha. This deconcentration of the region's population was facilitated by freeway and highway construction and improvement during the sixties, which continued into the early seventies. The population density for the City of Omaha is 4,534 persons per square mile. The City comprises an area of 76.6 square miles.

Employment is relatively diverse with employment in manufacturing and retail trade each making up 17 percent of the total employed workforce in both the City of Omaha and the SMSA. The remaining 66 percent of the workforce is distributed somewhat uniformly among transportation, wholesale, finance, insurance and real estate, health services, and education.

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[1]Washington County, Nebraska, and Mills County, Iowa, joined the Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA) in 1975.

## Transportation Characteristics

### Trip Characteristics

The primary means of commuting in the Omaha-Council Bluffs region is by private automobile. Due to an extensive and well-developed highway system, highway and street congestion is not a significant problem except in a few instances.

Public transit accounts for only 2 percent or 3,500 person-trips daily. The potential transit-dependent population is significant, however, for 20 percent of Omaha's population is over 65 years of age (22 percent in Council Bluffs), 15 percent of the households do not own an automobile, and 15 percent of households have incomes less than $5,000.

Adequate highway facilities and the absence of congestion appear to be the primary reasons for very low transit ridership. Transit is not limited by insufficient population density, for Omaha's population density is 4,534 persons per square mile and 64 percent of the population in the SMSA resides in the city. Furthermore, 68 percent of employment within the SMSA is in Omaha.

### Transit History

The history of transit operations in the Omaha-Council Bluffs area parallels that of other American cities. Immediately prior to July 1972, bus service in Omaha was provided by the Omaha Transit Company and in Council Bluffs by City Transit Lines, Incorporated. The Omaha Transit Company evolved from the Omaha-Council Bluffs Street Transit Company, which began in 1902. City Transit Lines, Inc., became a private, independent company in 1957, when the Council Bluffs Transit Company, which was a subsidiary of the Omaha Transit Company, was reorgananized.

On July 1, 1972, the Transit Authority of the City of Omaha was created by the State of Nebraska and the Cities of Omaha and Council Bluffs as a publicly owned metropolitan authority. The Transit Authority of the City of Omaha, which is known as Metro Area Transit (MAT), was created after the two private bus companies announced they would cease operations on June 30, 1972.

The above series of reorganizations was given impetus by the continuing decline in public transit ridership and service levels, and escalating fares and deficits following World War II. In 1946 approximately 180,000 person trips per weekday were made by public transit, 41 percent of the

daily person-trips at that time. By 1972 only 35,000 or 2 percent of the daily person trips were being made by transit. By 1972 the number of revenue passengers declined to 7.3 million, a 64 percent decline from 1946. Between 1961 and 1971 the average vehicle miles of service per 100 passengers increased from 28.92 to 48.13 or 66 percent, indicating increased services and operating costs per passenger. Because of declining transit ridership and increasingly severe revenue problems, both private operators in the area minimized purchases of new rolling stock. By 1972 the average age of the Omaha Transit Company total fleet (144 vehicles) was 14.89 years while that of the City Transit Lines (31 vehicles) was 12.60 years. Fleet size in 1975 was 163 and, in 1976, 172 vehicles. Vehicle miles provided in 1975 were 5,043,646.

Following the creation of MAT, transit ridership increased 5 percent in 1973 to 7.65 million revenue passengers, and 5.5 percent in 1974 to 8.08 million. Although concrete ridership tabulations for 1975 are not available, it appears that transit ridership stabilized during the year.

The increase and stabilization of transit ridership between 1972 and 1975 is attributed to two factors:

The fuel shortage during late 1973 and 1974

Marketing and management strategies of MAT, including service level and fleet upgrading and increased public transit amenities such as bus stop shelters.

Many of the latter have been directly facilitated by UMTA Capital and Technical Studies Grants.

The Nebraska State legislative bill that enabled the creation of the Transit Authority of Omaha City gave the agency responsibility for rehabilitation and modernization of all elements of the transportation system necessary to adequately serve its patron cities. It also is responsible for transit service in these areas. MAT was created by the Board of Directors of the Transit Authority of the City of Omaha to administer transit properties and operate public transit. The legislation gives the Transit Authority a 1 mill taxing (property tax) authorization in the City of Omaha. As of July 1, 1975, this taxing authority was increased to 2 mills.

Currently taxing authority is exercised only in the City of Omaha. Revenues derived from the 2 mill property tax levy in the city can be utilized only to subsidize operating costs in Omaha. Service outside the city is

provided through service agreements with these governmental jurisdictions, which reimburse any operating expenses not covered by farebox revenues. Council Bluffs, Iowa, and Bellevue, Papillion, La Vista and Ralsin, Nebraska, are currently receiving service from MAT on the basis of such service agreements. Additionally, agreements have been made with two private agencies for service.

## Transportation Planning Process

### History

The transportation planning process in the Omaha-Council Bluffs area arose from the need for long-range highway plans and programs and the requirement for a continuing, comprehensive and cooperative transportation planning process to maintain eligibility for Federal highway assistance. These requirements were set forth in the Federal Aid Highway Act of 1962, Section 134.

Consistent with the Federal guidelines for highway planning, a series of intergovernmental agreements were negotiated by local governments in Douglas and Sarpy Counties and the Nebraska Department of Roads in order to establish a cooperative process for preparation and execution of the Omaha Metropolitan Area Transportation Study (OMATS). This study was funded by the U.S. Bureau of Public Roads (Federal Highway Administration) and was primarily concerned with highway planning. Bi-state agreements with the State of Iowa were executed to ensure coordination of activity within the interstate, interdependent urban region. Long-range highway planning in Iowa (Council Bluffs) preceded that in Nebraska (Omaha), and the two areas had never combined planning efforts. This initial effort was characterized by a nonregional format with Council Bluffs and Pottawattamie County, each undertaking an individual long-range transportation study. Neither study included transit planning as an integral component.

Before the planning activities were completed, the FHWA requested that a joint work plan be provided by consultants for each area. In 1967, Douglas, Sarpy, and Pottawattamie Counties and their local jurisdictions responded by creating a regional planning agency, the Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA).

The OMATS was completed in late 1970 and released in January 1971. The plan, which was prepared by consultants, contained what became highly controversial recommendations. Residents of Sarpy County specifically objected to the lack of improved lateral access outside the Omaha urban area.

However, the OMATS is significant because the first UMTA Technical Assistance Grant in 1971 developed a transit planning element for OMATS.

With the creation of the Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA) and MAPA's assumption of long-range transportation planning, the first regionally coordinated long-range transportation planning process was initiated. The final OMATS report, released in 1971, was never adopted. This resulted in a loss of FHWA certification in 1972 and restructuring the long-range transportation planning process with the Continuing Omaha Area Transportation Study (COATS).

The transportation planning process was reorganized in 1971, with MAPA taking primary responsibility for coordinating local activities on a regional scale. This reorganization resulted in the continuing Omaha Area Transportation Study (COATS) under the auspices of MAPA. During 1974, Washington County, Nebraska, and Mills County, Iowa, became members of MAPA. MAPA now is the regional A-95 review agency and has been designated by the Governors of Nebraska and Iowa and certified by FHWA and UMTA as the Metropolitan Planning Organization for comprehensive transportation planning and programming in the Omaha-Council Bluffs region.

Since a 1973 memorandum of understanding, MAPA has had primary responsibility for long-range transit planning and MAT, for short-range transit planning. In 1975 MAPA reaffirmed this agreement.

### Goals

MAPA is a comprehensive land use planning agency with a primary goal of promoting orderly regional development and land use consistent with local priorities and values.

### Agencies

MAPA is primarily responsible for the coordination of long-range transportation in Douglas, Sarpy, Washington, Mills, and Pottawattamie Counties, including the Omaha-Council Bluffs urban area. MAT, as the agency operating public transit in the Omaha-Council Bluffs area, has the responsibility for short-range transit planning.

The membership of MAPA is composed of elected and appointed representatives of governing bodies of the municipalities, counties, boards, and authorities of the tri-county area. This Council of Officials is governed by a

board of directors, which appoints the MAPA Executive Director. In addition, there is a Citizens Advisory Board composed of citizens appointed by the MAPA Council of Officials.

Ongoing transportation planning is conducted by the Continuing Omaha-Council Bluffs Metropolitan Transportation Study (COATS) within the organizational framework of MAPA. The MAPA Board of Directors provides overall guidance in transportation planning. Three COATS committees provide policy and technical advice and citizens input. The COATS Officials Committee provides policy direction and advice for transportation planning. The COATS Technical Committee provides technical direction and policy guidance to the transportation planning process, and recommends and adopts the annual UWP.

The Citizens Advisory Board provides citizens input from a broad spectrum of communities to all phases of MAPA planning. The board consists of a minimum of 20 citizens appointed by the MAPA Board of Directors, and can make recommendations to the MAPA Board concerning any program or project of interest.

Negotiations have begun to restructure the COATS Officials Committee and the Citizens Advisory Board into a single unit. The exact structure and role of the new entity has not been determined.

The Transit Authority of the City of Omaha is governed by a five-member Board of Directors, which is appointed by the Mayor and approved by the City Council. The Board appoints the MAT Executive Director, who is responsible for all transit operations in the metropolitan area. There is an eleven-member Transit Advisory Committee to provide representative citizens input and advice in establishing and achieving transit goals. Members of this committee are appointed by the Mayor of Omaha.

MAPA is the recipient of Section 9 Technical Studies Grants. In addition, MAPA coordinates and prepares all funding submissions and regulatory requirements for these grants. It solicits proposals from MAT and incorporates recommendations for Technical Studies Grants and Capital Grants within the UWP.

MAT is responsible for implementing and effectuating transit planning and is directly responsible for short-range transit planning and programming. Section 3 Capital Grants and, more recently, Section 5 Operating Assistance Grants for transit are directly applied for and administered by MAT.

Technical Studies Grants

Five Technical Studies Grants totaling $387,000 have been awarded to the Omaha-Council Bluffs area. The grants are summarized in Table 29. The initial Technical Studies Grant was awarded to the City of Omaha; all subsequent grants have been awarded to MAPA.

The initial grant awarded in 1969 supported the development of a transit element for the long-range transportation plan. This grant was to prepare a long-range transit planning element that would be integrated with the OMATS transportation plan. It was the first effort to make transit planning and programming an element of transportation planning and programming, and was instrumental in the creation of the Transit Authority of the City of Omaha in 1972. The grant included:

Development of a modal split model sensitive to transit modes

Development and analysis of maximum and minimum transit networks

Selection of a 1985 transit network

The consultant firm of Simpson and Curtin conducted the technical study and submitted the report, Transit Options for Omaha, in 1972. The study initiated transit planning in the Omaha area and was integrated with the controversial OMATS plan. Among other things the final report recommended the development of a personal rapid transit (PRT) system for downtown Omaha.

The four subsequent Technical Studies Grants were awarded to MAPA. These grants have supported transit planning and programming as part of the Continuing Omaha Area Transportation Study (COATS) by MAPA and short-range transit planning by MAT. In accordance with the Memorandum of Understanding to divide responsibilities for long-range and short-range planning, MAPA applies for and receives Technical Studies Grants and passes through a proportion to MAT for short-range transit planning.

The first grant to MAPA (N-09-0005) included the following elements:

Revisions to the operations plan (FHWA requirement) to reflect multimodal planning activities

Collection of data and establishment of a socio-economic and transit information system

Development and testing of a 1994 transit network

Initiation of a major re-evaluation of area transit plans for the year 2000

MAPA assistance to the then newly-created MAT for development of a short term Transit Development Program (TDP)

A short-range Transit Development Program (TDP) for the period 1975-1980 was completed by MAT in July 1974 and adopted by MAPA in October 1975. This TDP will guide the preparation of subsequent UWP's and has been instrumental in the preparation of a Transportation Improvement Plan (TIP) and Transit Management Plan (TMP). Future capital funding requests to UMTA and capital acquisitions will be guided by the TDP. There now is uncertainty concerning the availability of resources to update the current TDP.

The last three grants to MAPA have supported the development of long-range transit planning elements for both the ongoing and major updatings of transportation planning within the COATS process. Part of these grants have supported short-range planning and programming by MAT including:

Onboard and non-transit user surveys (06,07,10)

Analysis of garage and maintenance facilities and locations (07)

Planning for handicapped and elderly

Analysis of a proposal to build a terminal in the Omaha CBD (10)

Preparation of TDP (06,07)

Analysis of socio-economic data (06,07,10)

Transportation Planning and Implementation

Development of Professional Planning Capabilities

The creation of the Transit Authority of the City of Omaha (MAT) was a significant step in transit planning, programming, and management. Neither of the two private transit operators was involved in transportation planning

and programming on a regional scale, nor did they utilize the services of professional transit managers or planners.

MAT, on the other hand, has emphasized short-range transit planning and management. Supported largely by Technical Studies Grants (the current flow-through of Section 9 assistance from MAPA to MAT is approximately 35 percent of Technical Studies Grants), MAT has undertaken studies and analyses of transit operations to improve services. Annual surveys of users and telephone household surveys have assisted in determining potentials for short-range service improvements. Route changes and new services (e.g., demand-responsive service for the elderly) have been the direct result of studies supported by Technical Studies Grants funds. Staging of improvements and programming, including fleet upgrading, bus stop shelters, garage and maintenance facilities, and a CBD terminal, has been facilitated by increased short-range transit planning and management proficiency.

Supported by Technical Assistance Grants since 1972, MAPA has developed a professional transportation planning capability. While long-range transportation planning (OMAT and COATS) has emphasized highway as opposed to transit planning, transit planning has become an increasingly integral component primarily through the provisions of technical studies support and the efforts of MAT.

New Capital Acquisitions

Since MAT began transit operations, the combination of Section 3 Capital Grant and Section 9 Technical Study Grant assistance has played an important role in transit planning and management.

The first Technical Study Grant to the City of Omaha recommended a staged program of capital improvements for transit operations. In July 1972, when MAT started operation, the Transit Authority of Omaha purchased the assets of both private operators (184 vehicles) and purchased additional capital assets with the assistance of a $3,565,014 Capital Grant from UMTA. The City of Omaha provided $1,618,439, and the City of Council Bluffs, $164,068 in local matching funds. In addition to the assets of the private operators, 20 new 45-passenger and 10 new 51-passenger air-conditioned buses, 1,382 bus stop signs, 93 two-way radio units, and various other equipment and supplies were purchased. This expansion and upgrading of equipment was consistent with recommendations of the initial Technical Study Grant.

A subsequent Section 3 Capital Grant in 1974 for $3,507,764 (local match $876,941) subsidized the purchase of 50 additional 47-57 passenger air-conditioned buses, 100 new fareboxes, 50 two-way mobile radio units, 6 service vehicles, 7 supervisor vehicles, and the renovation of garage, shop, and administrative offices for MAT. As with MAT's first Capital Grant, this second grant was consistent with the staged program of transit improvements recommended by the initial technical study. Consistent also was the phasing out of 60 older buses over this period.

To facilitate bus operations approximately 24 street corners have been rounded off to make right turn maneuvers easier. Schedule boards have been located around the city, and 89 bus stop shelters are being completed. Results of a recently completed study of garage and maintenance facilities and potential locations may be utilized for future implementation. Part of the current year's Technical Study Grant (a pass through from MAPA) is being used by MAT to determine whether a transit terminal and information center in the Omaha CBD are needed. Depending on the results of this study, the CBD terminal may be included in future revisions of the TIP and UWP.

New or Improved Services With Existing Facilities

Providing increased services through the optimal utilization of existing facilities and resources has been a goal of recent transit planning and management. Technical Studies Grants have supported overall development and planning in this area. On-board user surveys and home interview surveys, supported by Technical Studies Grants, have furnished information useful in short-range transit planning and management. Additionally, the continuous monitoring of socio-economic data has contributed in this area. These data and analyses have been instrumental in route changes initiated by MAT to increase service on well utilized routes and cut service levels on less utilized routes. Three park-and-ride express bus routes and six collector bus express routes have been established. In addition, 3 rush hour routes have been added to a basic system of 18 regularly scheduled service routes.

MAT has contracted with the localities of Council Bluffs, Iowa, and Belleview, Nebraska, as well as the "Tri Communities" of Papillion, La Vista, and Ralston, Nebraska, to provide transit services to these communities. Where fare box receipts are less than operating expenses for these communities, the respective government units or agencies agree to reimburse MAT for the difference. These contract services primarily involve express bus service between Omaha and the localities.

MAT has continually emphasized an innovative and aggressive marketing program to increase interest, awareness, and utilization of transit service. This includes an advertising promotional strategy with the following elements:

Mystery Bus--offering refreshments to commuters once a week

Santa Day--Santa as the bus operator and free candy canes on the Saturday prior to Christmas

Mother's Day--a flower for every riding mother on this day

Rain caps--to all female passengers on rainy days in April

Book covers--to student riders in December

Paint a bus contest--for high school seniors and juniors

Radio commercials with jingles, media advertising, tours and lectures, and career days.

MAT has been particularly aggressive in marketing transit service to the elderly. Fares are reduced during non-rush hours from the regular 40¢ to 10¢ per ride for those over 60. A grant from HEW first subsidized the cost of this program. Since 1974 the State of Nebraska and City of Omaha have provided the subsidy.

In addition, "Handi-Buses," mini-van bus vehicles, provide limited demand-responsive services to those over 60 and certified as eligible by the Eastern Nebraska Human Services Agency (ENHSA). The service is subsidized by HEW and the State of Nebraska and provided under a contractual agreement with ENHSA.

Subscription service is available with 10 or 30-ride prepaid tickets available at reduced rates. Special reduced fares are provided for students (25¢/ride) and children under 12 (20¢/ride). There is a "Shop and Ride" program in effect whereby merchants and employers can purchase tickets at reduced fare for distribution to customers and employees. Transfers, which were a nickel before 1973, are now free, and the standard fare similarly has been reduced from 45¢ to 40¢.

Institutional Climate

Technical Studies Grants have been an important factor in the evolution of the current institutional context of transit planning and operations.

Between MAPA and MAT there is a high degree of coordination and mutual recognition of their relative priorities, responsibilities, and limitations. At a policy level the Chairman of the Board of MAT is a voting member of COATS Official Committee and the Vice Chairman of MAT is a voting member of the COATS Technical Committee. The staffs of MAPA and MAT have coordinated and worked jointly in the preparation of the TDP, TIP, and Prospectus. This mutual cooperation is facilitated by staff exchanges and the personal working relationships between the two agencies this has engendered. The most notable contention between the two agencies is the relative emphasis between long and short-range planning activities within the technical support program. Both agencies agree that technical assistance resources are scarce, but MAT favors a higher proportionate allocation for short-range planning activity. While important, this difference in orientation has been subordinated to the attainment of a mutually supportive institutional structure and climate.

The City of Omaha has cooperated and actively participated in improving transit services. The Department of Public Works, for instance, has made curb and intersection improvements to enable MAT buses to turn without interruption or incident. There is some skepticism within the Department of Public Works, however, concerning the need for express bus lanes.

Due to local interest and initiative, MAT is executing an UMTA demonstration grant to operate a carpool program designed to increase auto occupancy and reduce congestion, energy consumption, and pollution. Transit planning is a relatively new consideration within the overall continuing transportation planning process of MAPA. MAPA is as yet uncertain about the role of transit in future comprehensive regional development and transportation planning. The general lack of freeway and street congestion and the emphasis on highway as opposed to transit development on a sub-regional scale creates some doubt as to the continued acceptance of a major role for transit.

Local jurisdictions and agencies within MAPA are concerned that the responsiblity for local planning and development remain vested in local, sub-regional governmental institutions. They are adamant about MAPA functioning primarily as a regional coordinating entity and not assuming responsibility for planning. Under its current

structure and leadership MAPA has effectively coordinated local planning and development on a regional scale and has not attempted to assume responsibility for initiating and directing planning.

Although citizens' participation is institutionalized within the MAPA planning structure through the COATS Citizens Advisory Committee, sub-regional citizens input is the primary means of citizens involvement. Meetings and hearings frequently are held on a subregional basis, where the plans and programs affecting individual sub-regions are discussed. Turnout and interest at the subregional level are higher than at the regional level.

Conclusions

In the Omaha area, transit operations and service levels have been upgraded in the recent past. Transit planning and management have evolved into capable, competent, and effective activities within the overall comprehensive and transportation planning process. Technical Studies Grants and the activities and studies they have mandated and supported have played an important role in this evolution. Continued support of these activities is essential to the quality of transit planning and operations in the study area.

Overall, it can be said there is a need for increased assistance for short-range transit planning and programming on a subregional level. MAPA should be encouraged to consider transit more substantively as a viable element in regional comprehensive and transportation planning.

See the summary matrix, Table 30.

TABLE 29. OMAHA - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| N-09-0002 | City of Omaha | $81,000 | FY70 |
| N-09-005 | MAPA | 43,020 | FY73 |
| N-09-006 | MAPA | 109,046 | FY74 |
| N-09-007 | MAPA | 69,000 | FY75 |
| N-09-0010 | MAPA | 85,000 | FY76 |

# TABLE 30. OMAHA - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region VII

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | S | 387K | 1969 |
| Capital, Section 3 | 2 | 7.1M | 1972 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | | | x | x | MPO pass through funds to operator. |
| Operational | x | x | | | | x | |
| Long Range | x | x | S-20 | x | x | | |
| Modelling | x | | | x | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | 3-S | | | x | |
| Garage/Maintenance | x | x | | | x | x | Renovation of facilities. |
| Operational/Other | x | x | | x | x | x | |
| Park and Ride | x | x | | | x | x | Park and ride express bus and collector bus express routes. |
| **Service Improvements** | | | | | | | |
| Special Services | x | x | | | | x | Charter fare reduction for social service clients. |
| Handicapped & Elderly | x | x | | | | x | |
| Demand Responsive | x | x | | | | x | |
| Management | | | | | | | |
| Marketing | x | x | | | | x | Extensive use of promotions. |
| Other | x | | | x | | x | PRT circulation, CBD terminal |
| Route Coverage | x | x | | | | x | |
| Route Scheduling | x | x | | | | x | |

## 5.15 PROVIDENCE, RHODE ISLAND

### Demographic/Socio-Economic Background

Rhode Island, the smallest state in land area in the nation, is also the most urbanized. In 1970, 87.1 percent of the population lived in cities or towns; 83.1 percent of the state population lived in the Providence metropolitan area. The state also ranks high in population density, second only to New Jersey. Of its 949,723 1970 population, only 2.6 percent were Blacks. The per capita income in 1972 was $4,399, ranking 18th in the U.S.. The elderly account for 11.0 percent of the state in 1970.

The topography is characterized by low rounded hills and an extensive bay region. Manufacturing, which employs the largest sector of the population, has been declining, while wholesale and retail trade, service construction, government, and finance employment have been rising.

Because of the size and urban nature of the state, the state planning organization, the Rhode Island Statewide Planning Program (RISPP), has been designated the metropolitan planning organization (MPO). Since the operator of the public transit system, the Rhode Island Public Transit Authority (RIPTA), is also statewide, this case study covers the entire state of Rhode Island rather than just the Providence area.

### Transportation Characteristics

#### Trip Characteristics

The highway network is the most important element of the state's transportation system and there has been extensive construction. Limited access, divided highways are linked to similar road systems in Connecticut and Massachusetts, and expressways route traffic through the congested Providence metropolitan area.

The work trip modal split reveals 91 percent used private autos in 1970. Transit usage was less than 6 percent. The historical trend shows a pattern of declining transit usage and increased auto usage for work trips.

### 2.2 Transit History

Public transit in the State of Rhode Island is a bus service. The Rhode Island Public Transit Authority (RIPTA)

is the major and the only public operator of transit in the state, carrying approximately 95 percent of all fixed route transit passengers. It serves the Providence Metropolitan area, the city of Newport, and the areas of South Kingstown and Narragansett.

There are five other primary fixed route systems operating in the state. These privately owned systems are the Bonanza Bus Company, which connects Providence-Bristol-Newport and Providence-Quonset Point-University of Rhode Island; the ABC Bus Company, which connects the northwest part of the state with Providence; the Pawtucket Valley Bus Lines, which provide regularly scheduled charter service for companies; the Yellow Airport Service, Inc., which operates a charter service between Providence and the airport; and the Greyhound Bus Company, which provides limited service between Providence and Westerly on their New York run.

Other transit services in the state are provided by a variety of para-transit operations which serve elderly, handicapped, mentally retarded, and other populations. Senior Citizens Transportation, Inc., a private nonprofit operator, which provides a demand-responsive service primarily for the elderly in the state, is the major provider of para-transit, providing 50 percent of the para-transit trips in the state. Next largest is the Rhode Island Association of Retarded Citizens with about 10 percent, followed by the City of Cranston's Transvan with around 7 percent. The remaining para-transit services are provided by a variety of other organizations.

The statewide transit operator, RIPTA, was established by legislative act in 1965 as an independent autonomous entity to take over a private operator who planned to drop service in the Providence area.

The takeover occurred on July 1, 1966, and by June 31, 1971, RIPTA had updated its transit system with replacement buses obtained with grants from HUD and operated on a balanced budget with farebox revenue. During the 1970's, RIPTA acquired transit companies that were defunct or losing patronage and service charters from carriers seceding from certain areas. RIPTA has moved towards providing transit throughout the state.

RIPTA employs, under contract, the National City Management Company to manage its transit operations. Forthcoming expansions of RIPTA to take over specialized para-transit operations will make RIPTA one of the first transit operators offering statewide service.

Since RIPTA began receiving UMTA funds, it has increased patronage and expanded service. Between June 30,

1972 and June 30, 1975, RIPTA increased its number of buses 11.4 percent from 167 to 186, its number of passengers 9.9 percent from 18.2 million to 20.0 million, and its bus miles operated 10.0 percent from 6.0 million to 6.6 million.

## Transportation Planning Process

### History

The agency responsible for coordinating transportation planning in the State of Rhode Island is the Rhode Island Statewide Planning Program (RISPP). RISPP through the years has evolved into (1) a transportation study in the continuing phase, as defined by the Federal Highway Administration and the Urban Mass Transportation Administration; (2) an agency responsible for coordinated recreation, land, and water conservation planning, as defined by the Bureau of Outdoor Recreation; (3) an agency responsive for economic development, as defined by the Economic Development Administration, (4) the official metropolitan clearinghouse to review and process federal funding applications under OMB Circular A-95; and (5) the metropolitan planning organization to administer commuity development funds to communities, as defined by the Department of Housing and Urban Development.

RISPP was established in 1970 as a division of the Department of Administration by act of the General Assembly. The work of the program was a continuation of the Rhode Island Statewide Comprehensive Transportation and Land Use Planning Program, which was created in 1964 to fulfill the Federal Aid Highway Act of 1962 and the Urban Mass Transportation Act of 1964. These required the preparation of a comprehensive transportation-land use plan for federal funding.

The work of the program has been guided by a policy group, the State Planning Council, composed of local, state, and federal representatives. Under the direction of this council, the State Guide Plan, the plan for integrated development of various programs in the state, is outlined. A public transit plan is a part of the State Guide Plan.

The work of the RISPP is supported by state appropriations and federal grants. The grants from the various federal agencies are administered through the Integrated Grant Administration (IGA) Program. The IGA program was established by the Office of Management and Budget, Executive Office of the President, and is administered by the Federal Regional Councils. Through this procedure, a state or locality can apply for a number of grants (from the various federal agencies) designed to

accomplish a common objective, through a single application. The consolidated grant is then administered on a unified basis by a federal "lead agency." The Federal Highway Administration has served since FY73 as lead agency in the IGA project of the RISPP. The IGA format has been in operation in Rhode Island since FY73.

Goals

The goals regarding public transit in the state have been established by The Rhode Island Transit Plan; The Rhode Island Transportation Plan, 1990; The Interim Transit Development Plan, revised May, 1974; and the Action Plan for the Conservation of Transportation Energy in Rhode Island. These specific transit-related objectives are:

(1) To maintain the present level of bus operations, including areas to be served, routes, and schedules.

(2) To consolidate transit operations into a single subsystem incorporating local and express service over fixed routes, demand-responsive service, use of "people movers" in selected areas, and other operations.

(3) To extend local and express service to developing and unserved residential and employment areas.

(4) To initiate service from commuter parking lots located on the major routes for work trips leading to the Providence Central Business District.•

(5) To re-evaluate continually the fare structure, including basic fares, fare zones, and special fare plans to ensure system efficiency.

(6) To improve transit service for the mentally retarded, handicapped, elderly, and low-income interest groups.

(7) To implement rapid rail or exclusive busway transit along the Providence-Bristol County corridor.

Agencies

The RISPP at present is responsible for long-range transit planning, while the Rhode Island Department of Transportation (RIDOT) conducts short-range transit planning for the major operator in the state, the Rhode Island Public

Transit Authority. Between FY73 and FY75 the RISPP had been responsible for both short and long-range transit planning. Beginning in FY75, RIDOT and RISPP began working together to plan for RIPTA.

### Technical Studies Grants

RISPP received its first UMTA Technical Study Grant in FY73. This grant was used to study rapid rail possibilities, shelter and terminal needs, route modifications, needed areas for transit expansion, and alternative fare structures, and to develop a Transit Development Program (TDP). Succeeding UMTA Technical Study Grants for FY74, FY75, and FY76 respectively have covered development of a TDP; revision of the TDP, evaluation of existing conditions of RIPTA, and para-transit studies; and continued development of the TDP, and public transit studies. Table 31 contains a listing of the Technical Studies Grants RISPP has received.

RIDOT received its first Section 9 Technical Study Grant for FY75. The activities covered in this grant period included studies of the implications of RIPTA reorganization, express bus park-and-ride services, the integration of senior citizen transportation into RIPTA, the commuter rail pilot project, and the best transit use of the rail right of way that the state plans to acquire. FY76 activities include mapping and RIPTA reorganization, bus stop inventory and local study, the Warwick demand-responsive study, handicapped and elderly service integration, and transit planning coordination. Table 31 contains a listing of the transit planning grant and amendment RIDOT has received.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Since the RISPP is statewide, development plans for the coordination of highways, airports, marine terminals, waterways and harbors, public transportation, parking facilities, and intercity terminal and related facilities have been the responsibility of the RISPP since 1969. The RISPP staff was supported by grants from the Federal Aviation Administration, the Federal Highway Administration, the U.S. Department of Transportation Office of the Secretary, and by state appropriations before UMTA grants for planning were initially awarded in 1973. Since UMTA planning funds were introduced in FY73, the RISPP has increased its professional transportation planning staff by 3 to the present total of 11. The increase of three staff

professionals in the transportation planning group is directly attributable to the increased mass transit planning studies required by UMTA.

UMTA also has sponsored training sessions to assist planners in their transportation studies since the Section 9 grants were awarded, and these courses have been attended by the transportation planning staff of the RISPP. Therefore, in addition to contributing to the increased size of the RISPP transportation planning staff, the activities of UMTA between FY73 and the present have aided the training of transportation planners in the RISPP. The added training has not been lost through staff turnover. Of the eight original transportation planning staff present before the first UMTA grant, six now remain.

### New Capital Acquisitions

Using Technical Studies Grants in 1973, the RISPP outlined an eight-year long capital investment program to improve public transit. This program recommended replacement buses, new buses, passenger shelters, exclusive busways, plant improvements, new equipment, and rapid rail facilities. Thus far, RIPTA has received from UMTA Section 3 and 5 funds totalling approximately $2.3 million between FY73 and FY76 to purchase replacement buses, new buses, garage improvements, new office equipment, maintenance and other equipment, passenger shelters, and other miscellaneous capital improvements (see Table 32). Consequently, UMTA assisted plans coincided with UMTA funded capital improvements.

### New or Improved Services With Existing Facilities

In the initial UMTA funded planning efforts, the RISPP recommended route changes and new transit service to satisfy the needs of (1) low income people to jobs, (2) the elderly to shopping, medical, and recreational facilities, and (3) the students and staff of the University of Rhode Island in the South Kingston and Narragansett areas. Some of these recommendations corresponded with changes in transit services in the state. Expanded and special service between major housing projects and homes of the elderly and shopping malls and nearby supermarkets, special charter service for the elderly to recreational areas, and transit service for the first time in the South Kingston and Narragansett areas have been implemented in the state since 1973.

Institutional Climate

There is no local or state tax for the support of public transit in the state. RIPTA depends on state subsidies for operating deficits. Between FY72 and FY76 RIPTA has received more than $7 million in operating assistance from the state. RIPTA has used state funds to provide its local matching share of UMTA Section 3 grants for capital improvements.

This strong financial support by the state has allowed the state to affect many decisions regarding implementation of transit service provided by RIPTA. Reduced fares for the elderly, handicapped, and student populations were stimulated and paid for by the state; 1 dollar, 60 mile round-trip summer express beach buses were introduced and subsidized by the state. The state has passed and will financially support the nation's first statewide no-fare transit bill for the elderly.

The State Planning Council, the organization responsible for guiding the work of the RISPP has had 80 percent of its members appointed by the governor. Long-range planning is heavily influenced by state interests. Recent allocations of UMTA Section 9 funds to RIDOT for FY75 and FY76 planning strengthen the state's control over short-range transit planning.

## 6. Conclusions

The IGA format of the Rhode Island Statewide Planning Program (RISPP) has been valuable to comprehensive planning in the state by conserving staff time and budget with the preparation of a single grant application rather than with the time and money-consuming preparation of a grant application for each federal agency. Consequently, staff energies can be used to perform other duties.

Presently, the RISPP and the Rhode Island Department of Transportation (RIDOT) conduct transit planning exclusively for the Rhode Island Public Transit Authority (RIPTA). The exclusivity of planning for RIPTA and the structure, which isolates RIPTA as the operator and RISPP and RIDOT as planning agents for RIPTA minimizes conflict. Since planning is not done for other operators, potential conflicts of interest do not arise. Also, since planning and operation have been separated, planning conflicts have been avoided between RISPP and RIPTA.

The strong commitment of the state legislature and the governor to RIPTA has produced many transit-related benefits. The bulk of RIPTA's operating deficits have been subsidized by the state. Specialized service to the beaches has also been subsidized, and the state has instituted the first statewide no-fare legislation for the elderly in this country, among other changes.

See the summary matrix, Table 33.

TABLE 31. PROVIDENCE - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| RI-09-0002 | RISPP | $31,300 | FY73 |
| RI-09-0003 | RISPP | 57,000 | FY74 |
| RI-09-0004 | RISPP | 112,000 | FY75 |
| RI-09-0005 | RISPP | 99,600 | FY76 |
| RI-09-8001 | RIDOT | 20,000 | FY75 |
| RI-09-8001-1 | RIDOT | 21,200 | FY76 |

TABLE 32. PROVIDENCE - CAPITAL IMPROVEMENT GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE | ITEMS COVERED |
|---|---|---|---|---|
| RI-03-0004 | RIPTA | $461,000 | FY74 | Office, maintenance, and other equip., garage improvements |
| RI-03-0005 | RIPTA | 574,000 | FY75 | Bus shelters, radio equip., stop signage, other equip. |
| RI-03-4004 | RIPTA | 1,285,000 | FY76 | New buses, replacement buses, other |
| TOTAL | | 2,320,000 | | |

# TABLE 33. PROVIDENCE - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region 1

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9[1] | 6 | 341K | 1972 |
| Capital, Section 3[2] | 2 | 1.4M | 1973 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | | | x | | | Short range planning was conducted by the MPO during the early grants but now it is done by the Rhode Island Department of Transportation (RIDOT). |
| Operational | | | | | | | |
| Long Range | x | | | x | | | |
| Modelling | | | | | | | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | | 1S | x | | | Began in FY74. |
| Garage/Maintenance | x | x | | x | | | |
| Operational/Other | | | | | | | |
| Park and Ride | x | | 1S | x | | | |
| **Service Improvements** | | | | | | | |
| Special Services | x | x | | x | | | |
| Handicapped & Elderly | x | x | | x | | | Special and charter services for elderly implemented. |
| Demand Responsive | x | | | x | | | |
| Management | x | x | | x | | | Training of MPO staff. |
| Marketing | | | | | | | |
| Other | x | x | | x | | | New service, new office equipment, shelters. |
| Route Coverage | x | x | | x | | | |
| Route Scheduling | x | x | | x | | | |

1. Includes 2 Section 9 grants to Rhode Island Department of Transportation.
2. Include Section 3 grants received since 1972, date of first Section 9 grant.

## 5.16 SALT LAKE CITY, UTAH

### Demographic/Socio-Economic Background

Much of Utah is composed of desert, mountain ranges, and national parks and forests. As a result the population is concentrated in a relatively small section. The three major cities, Ogden, Salt Lake, and Provo, are located in a north-south direction, bounded by the Rocky Mountains, the Great Salt Lake, and desert. This strip of population at the base of the mountains is known as the Wasatch Front.

The cities of Salt Lake and Ogden have experienced population decreases between 1960 and 1970, while surrounding suburban areas have experienced growth. Salt Lake's population decreased 7 percent during the 1960's while the SMSA grew 25 percent. Ogden's population declined 1 percent while the SMSA grew 14 percent. Provo has grown at a faster rate (47 percent) than its SMSA (29 percent).

The Salt Lake-Ogden area is fairly representative in terms of family and personal income. In the Salt Lake City SMSA, 7.5 percent of the families live below the poverty level (Ogden has 7.4 percent) compared to 8.5 percent for SMSA's across the United States. The average per capita income for the Salt Lake City SMSA, $2,922 ($2,973 for Ogden), is slightly lower than the U.S. average per capita income, $3,119.

The proportion of elderly in the Salt Lake City SMSA (6.9 percent) and the Ogden SMSA (7.8 percent) is somewhat less than the national proportion in SMSA's (9.3 percent). Minorities form a relatively small part of the populations of Salt Lake and Ogden. The proportion of blacks living in the Salt Lake SMSA, 0.7 percent (1.6 percent for Ogden), compares with 12.0 percent blacks in SMSA's across the country. The proportion of nonblack minorities in the Salt Lake City SMSA is an additional 1.3 percent, making the total minority population in Salt Lake 2.0 percent.

Utah's economic mix is similar to that of the United States as a whole, with the exception of under-representation in manufacturing and over-representation in mining and government employment. Twenty-five percent of Utah's civilian income is derived from government employment.

Many of the major employers in the Salt Lake-Ogden area are located outside the two cities. The state's largest employer, Hill Air Force Base, employing 17,000 civilians, lies midway between Ogden and Salt Lake. Kennecott Copper,

the world's largest open-cut copper mine, is southwest of Salt Lake City, as is the Hercules Powder Plant and the National Lead Factory. Major employers lying outside of Ogden include Thiokol Chemicals, the Ogden Defense Depot, and a large Internal Revenue Service complex.

Tourism is a flourishing business due to the numerous national parks in the state. In the winter skiing draws tourists to the area in increasing numbers.

## Transportation Characteristics

### Trip Characteristics

Salt Lake City, a planned community from its inception, has broad avenues (132 ft wide) and large blocks (10 acres square, 660 ft long). Its design easily accommodates auto travel. The ample supply of downtown parking and the rather diffused character of the Salt Lake CBD also make auto travel easy. A spacious freeway, I-15, with many interchanges, connects Ogden, Salt Lake, and Provo.

The transit modal split for Salt Lake City is low. The percentage of work-trip transit use for the Salt Lake urbanized area was 2.4 percent in 1970 compared with 13.8 percent for urbanized areas across the nation. In 1960 the percentage of work-trip transit use was 4.4 percent. While transit ridership was declining, car ownership was rising. In 1960, 69 percent of residents of the Salt Lake urbanized area owned at least one car; by 1970 the proportion had risen to 89 percent.

### Transit History

Originally served by horse-drawn trolleys, the Wasatch Front's public transportation has until recently been provided by a number of private bus companies. In Salt Lake City, the local operator was Salt Lake City Lines, Inc., a subsidiary of National City Lines, serving the city and unincorporated areas to the south.

Other carriers provided intercity and intracity service for Odgen. Lewis Brothers Stages provided service to communities to the west and southwest of Salt Lake. In Ogden, service was provided by the Ogden Bus Company. A subsidiary of Ogden Bus, Wasatch Motor, Inc., ran buses from Ogden to areas in Weber and Davis counties and to Hill Air Force Base. Metro Transportation Company, also a subsidiary of Ogden Bus Lines, operated routes to Thiokol Chemical Corporation (northwest of Ogden). Lake Shore Motors, a

third subsidiary of Ogden Bus, provided intercity service between Salt Lake City and Ogden.

All of these bus lines began experiencing difficulties in the 1960's, when they became caught in a spiral of decreasing ridership and decreasing revenue followed by service cutbacks and rising fares. This action in turn led to further declines in ridership. Salt Lake City Lines' patronage decreased 62 percent between 1962 and 1970, a much steeper drop than was experienced by transit systems in the other parts of the country over the same time period. In response the company cut back service more than 40 percent and increased fares 72 percent.

All of the private operators in the Salt Lake-Ogden area were losing money on their regular operations at the end of the 1960's, but were recouping some of their losses through the charter operations.

In 1969 the state legislature, noting the imminent demise of private bus lines, passed the Utah Public Transit District Act. This act authorized the formation of the Utah Transit Authority (UTA), which was given operating authority throughout Salt Lake County. UTA, formed in 1970, took over operation of Salt Lake City Lines, which provided intracity service to the Salt Lake City area. Intracity service in Ogden and intercity service between Salt Lake and Ogden were still provided by private operators. Local funds were used to commission a consultant, Alan M. Voorhees and Associates, to produce a transit improvement program for UTA. Following the recommendations of this study, service was expanded, new buses purchased, and a new administration and maintenance facility constructed. Ridership increased 9 percent during the first year of UTA service.

In 1972 the Wasatch Front Regional Council, the regional planning agency, contracted with Voorhees to do a regional transit development program for the Salt Lake-Ogden area. The recommendations of this study included public acquisition of the remaining private operators and the provision of a comprehensive, coordinated system of public transit service for the entire area. In November 1973 voters in Davis and Weber Counties completed the service expansion when they voted to join the UTA.

During this same period, there was much discussion in the state legislature and the press as to ways to finance the UTA operation. In November 1974, a referendum for a 1/4¢ sales tax to subsidize low-fare public transit was placed on the ballot of the three-member counties. Voters in Salt Lake and Weber Counties approved the measure. Davis County voters rejected it, but, in 1975, voted to accept.

The funding mechanism went into effect immediately in Salt Lake and Weber Counties. Fares were reduced from 30¢ to 25¢ in January 1974, and further reduced in January 1975 to 15¢ for adults and 10¢ for children, senior citizens, and handicapped riders. All transfers and intracity zone fares were eliminated. During the two months following these decreases, ridership increased 41 percent in Salt Lake County and 51 percent in Weber County (90 percent if new routes are included in the calculation). Since that time ridership has continued to increase until today it is almost 130 percent greater than at the time of UTA's expansion in 1972. At the same time that fares were decreasing, service coverage was increasing. Route miles operated went from approximately 3 million in 1971 to almost 4.6 million in 1976 or an increase of around 55 percent.

## Transportation Planning Process

### History

In response to the Federal Highway Act of 1962, which required urbanized areas to initiate "3-C" transportation process, three studies were begun in the Wasatch Front Region. SLATS (Salt Lake Area Transportation Study) was formed in 1960, followed by OATS (Ogden Area Transportation Study) in 1963. These studies represented the region's first comprehensive transportation planning. They attempted to predict future transportation needs based on population, employment, and land use data for the urbanized areas along the Wasatch Front. As was true in many other communities, long-range planning for the Salt Lake-Ogden area was initially very highway-oriented, with transit included only as a side issue.

The first major transit planning document produced in the area was the locally-funded Transit Improvement Program undertaken in 1970 at the time of UTA's takeover of Salt Lake City Lines. The TIP specified improvements necessary to upgrade the operation of the newly-acquired bus line and outlined a 10-year capital improvement program.

The second major transit document was the Section 9-funded Regional Transit Development Program completed by Alan Voorhees and Associates in March 1973. It dealt with

UTA's expansion into Weber and Davis counties and outlined a 7-year improvement program. An update of this TDP was necessary in 2 years due to increased transit usage above the TDP's prediction and to the opening up of new sources of local funding (the 1/4¢ sales tax). Voorhees completed the updated in March 1975. Currently, WFRC is working on a TIP with a TSM element.

The complexity of the planning process in the Salt Lake-Ogden area has increased greatly during the past 10 years. In response to a federal emphasis on regional coordination, local counties formed councils of government (COGs) during the late 1960's. Regional planning was further consolidated in 1969 when the COG's of Salt Lake, Davis, Weber, Morgan and Tooele Counties joined to form the Wasatch Front Regional Council (WFRC).

WFRC is one of seven "associations of government" in Utah created under a 1969-amended version of Utah's Interlocal Cooperation Act to deal more effectively with intercounty problems. WFRC is responsible for regional planning, including transportation planning, within the five-county area.

Also involved in transportation planning is the Utah Department of Transportation (UDOT), created in 1975. It is an amalgamation of the former Utah State Department of Highways, the Division of Aeronautics, the Passenger Tramway Safety Board, and the transportation safety section of the Public Service Commission. The State Highway Department had formerly provided a major part of the planning manpower for the SLATS and OATS studies. Currently, UDOT carries out most of the highway planning for the region and provides specialized planning assistance to WFRC.

A third agency involved in the transit planning process is the Utah Transit Authority (UTA), formed in 1970 to enable the public takeover of Salt Lake City Lines. UTA does some minimal operational planning, but it is primarily involved in the day-to-day operations of the three-county bus system.

## Goals

In 1974 Wasatch Front Regional Council adopted a set of long-range goals specifying the percentage of trips to be made by transit by the year 1995. For Salt Lake County the goal is 5 to 10 percent of all trips and 20 to 25 percent of all work trips by 1995. For Weber and Davis Counties the goal is 4 to 7 percent and 5 percent of all trips, respectively. These goals represent potentially large

increases in ridership, since the 1970 transit modal split for Salt Lake County was 2 percent.

The 1975 updated TDP suggests that service should be expanded to the point where 85 percent of the population is within 1/4-mile walking distance of a regularly scheduled route. This goal was attainable for Salt Lake County within 1 or 2 years, but was expected to take somewhat longer in Weber and Davis Counties. The TDP further suggests that service be expanded to serve shopping, school, recreational, and medical trips, as well as work trips. Recognizing the dispersed nature of origins and destinations in the area, service should be reoriented to cover other than CBD-bound trips. The use of express bus service from the suburbs to CBDs and to other major employment centers, such as Hill Air Force Base, is suggested in order to compete with the auto as a work-trip mode. In general, the aim is to serve the transit-dependent population for a variety of trip purposes and to compete with the auto primarily in the area of the work trip.

Agencies

Transportation planning in the Salt Lake-Ogden area is primarily the responsibility of the Wasatch Front Regional Council (WFRC). WFRC is the designated MPO for the region, as well as the A-95 review agency and the HUD 701 agency. It coordinates planning for its five member counties in the areas of social services, land use, environmental quality, housing, and transportation.

WFRC's policy-decision-making board is composed of elected officials from all of the municipalities in the five-county area. All planning decisions must be passed by this board.

Transportation planning is carried out by one of WFRC's working committees, the Transportation Coordinating Committee (TRANS COM). On TRANS COM sit representatives of the FAA, FHWA, UDOT, UTA, and the State Transportation Commission (a lay commission appointed by the Governor), as well as 10 elected officials representing the COG's which compose the WFRC. TRANS COM is aided in its policy-making by two technical subcommittees, the Salt Lake Area Technical Advisory Committee and the Ogden Area Technical Advisory Committee, composed of planners and engineers from the municipal and county governments involved with WFRC. These technical committees evolved out of the technical committees of the SLATS and OATS studies. Proposals are often initiated by the technical committees and brought to TRANS COM for review.

WFRC, UTA, and UDOT are all about to become signatory agencies on a memorandum of understanding in 1976, which specifies the role of each agency in the planning process. WFRC, as the MPO, has the principal responsibility for transportation planning, including the preparation of a Unified Work Program (UWP) and the coordination of its implementation. Highway projects are the province of UDOT, which develops an "Action Plan" containing upcoming highway projects. All highway projects, however, must be consistent with and reflected in the Unified Work Program. The WFRC passes through some planning funds each year to UDOT for traffic studies and other specialized planning functions and to UTA for collection of operational data, which WFRC in turn uses for transit planning purposes. The amounts of such passed-through funds are small relative to WFRC's overall planning budget.

Technical Studies Grants

To date, WFRC has received four technical studies grants totalling $754,228. The 1971 study done by Alan Voorhees and Associates at the time of UTA's takeover of Salt Lake City Lines was locally funded with no use of Section 9 funding. However, the Regional Transportation Development Program done by Voorhees in 1972 was financed by WFRC's first technical studies grant. This study detailed existing bus service characteristics in Weber, Davis, and Salt Lake County and and considered possible service alternatives, including a recommendation for public acquisition of the remaining private lines. A 7-year transit improvement plan is outlined in the study. As part of the same package, Voorhees did a long-range plan with transit trip projections for 1995 and an evaluation of the suitability of a separate right-or-way transit system, and three supplemental studies relating to the transportation needs of Weber State College, the University of Utah, and the Weber County School System.

The second technical studies grant, awarded in June 1974, provided the funds for a Voorhees update of the 1972 TDP. Additional Section 9 grants in June 1975 and June 1976 have been used for refinement of the TDP and preparation of the annual Unified Work Program, with small amounts of Section 9 funds passed through to UDOT and UTA. In August 1975 WFRC undertook a survey of elderly and handicapped individuals in the area and interviewed personnel of social service agencies that serve this population. This study, undertaken using Section 9 funding, will be completed in 1976 and will be used to update the TDP. (See Table 34.)

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

WFRC's staff has expanded considerably during the last few years. In 1971 the staff consisted of a director and a secretary. Currently, the transportation planning staff numbers 10, with 25 employed at WFRC overall. This staff expansion has occurred simultaneously with a takeover by WFRC of some of the long-range transportation planning functions formerly handled at the state level and the continuation of short-range planning begun with the consultant-prepared TDP.

Some transit planning functions are still performed by the State Highway Department, now part of UDOT. Last year (FY75) $50,000 of Section 9 funds (approximately 12 percent of the overall FY75 Section 9 funding of WFRC) were passed through to UDOT for planning services. Traffic studies and special studies, such as a 1975 study on commuter parking along the Wasatch Front, are typical of the kinds of services UDOT performs for WFRC.

In addition, WFRC passes through a small amount of planning funds to UTA ($16,000 in FY75). UTA collects operational data, such as monthly counts of ridership on all routes, including separate counts of youth and elderly. These data are turned over to WFRC for route analysis. WFRC takes the initiative in proposing new routes based on population data and UTA-generated ridership data. However, UTA holds a veto over the implementation of any new routes.

Changes in headways in response to increased or decreased ridership are undertaken at UTA. UTA has several operations planners directing these changes. Currently, this operational planning is carried out in a fairly informal method. No commuter packages are used for schedule and route changes, although WFRC has suggested to UTA that the RUCUS package be implemented, and this may occur in the future.

WFRC has recently introduced the use of DIME census information as a basis for all area-wide planning activities. WFRC does not have its own computer facilities, but rents time at the facilities of the Church of the Latter Day Saints.

A gravity model for predicting regional development was created some years back by the State Highway Department. This model, which contains transit usage as a component, has been turned over to WFRC for their use. However, to date this model has not been used and no other kind of modeling has been undertaken.

The sub-study associated with the TDP, which looked at the possibilities of fixed guideway transit for the region, has been the only long-range transit planning. WFRC currently feels that buses are the most appropriate mode for the area. Since UTA has an almost totally new fleet, it will not have to replace buses for a number of years. It is expected long-range planning will address whether a different system of mass transit should be instituted when the buses are retired in 20 years or whether a new fleet of buses is in order. WFRC intends to conduct more long-range planning in the near future, but until recently it was too busy with TDP implementation and refinement to devote time to this area.

New Capital Acquisitions

UTA has received five capital assistance grants totalling $24 million since its formation in 1970. The first grant allowed construction of a new garage, maintenance and office building complex, and purchase of six new buses for the newly-formed UTA. A 1972 grant was used to purchase 25 new buses and another, in 1974, to purchase 45 new buses. The acquisition of Ogden Bus Lines and its subsidiaries was accomplished using funding from a Section 3 grant. The largest capital grant was awarded in 1975 to purchase 206 new buses and a number of other items including bus signs, bus benches, and bus shelters. As a result, UTA now operates an entirely new fleet of over 300 buses. The average age of the buses, which was 16 years at the time of UTA's formation, has been drastically reduced.

New or Improved Services With Existing Facilities

The 1972 TDP recommended the expansion of UTA to Weber and Davis Counties and suggested service improvements to accompany this expansion. The principal suggestions were increased service coverage and new equipment for more frequent headways. Much of this has already been implemented. Route miles traveled have expanded nearly 55 percent and fleet size has grown 248 percent.

Other TDP-suggested improvements include the following: park-and-ride lots at large shopping centers with express bus service to major employment centers, a downtown shuttle service for the Salt Lake CBD, reduction of the 30¢ base fare to 25¢ with 15¢ fare for youth and elderly, elimination of fare zones within the city and establishment of free transfers between routes, continuation of the worker service routes to major employers, provision of service to major ski areas, a public information and marketing program, and installation of bus shelters, signs, and schedules.

Some of these recommendations have been implemented, others are being implemented, and still others have been tried but abandoned as impractical.

One of the recommendations, a park-and-ride shopping center lot, was started but later abandoned due to lack of patronage. However, park-and-ride is not a dead issue. The energy crisis precipitated noticeable interchange parking along I-15, the interstate connecting Ogden, Salt Lake, and Provo. UDOT's urban planning staff conducted a survey of interchange parking and recommended the establishment of five upgraded commuter parking areas along I-15. One of these areas is currently in use. Patronage is mainly by carpoolers and few use it to transfer to buses. A planned transportation center south of Salt Lake will contain a park-and-ride area and may attract more bus-riding patrons.

A downtown circulation service with a 10¢ fare was put into operation, but was later abandoned due to insufficient patronage. The service was subsidized by the city, and the city felt that the ridership did not justify continued subsidy.

UTA's base fare was dropped from 30¢ to 25¢ in 1974. Ridership increased 15 percent following this fare decrease. A year later, fares were further reduced to 15¢ with a 10¢ fare for youth, elderly, and handicapped. Ridership increased 78% following this decrease. In response to federal guidelines, a no-fare policy was implemented for elderly and handicapped during off-peak hours. Another service improvement is the provision of monthly passes, available to adults for $6.00 and to elderly and students for $4.50.

At the same time as the second fare decrease, intracity zone fares were eliminated and a free transfer policy put into effect. For intercity travel there are 5 fare zones with a 15¢ increment between zones. This increment is lower than the TDP-recommended 25¢.

Worker service to major employment centers, such as Hill Field, Thoikol Chemical, the Ogden Defense Depot and the IRS complex, has been continued, with a new route added to serve the National Lead Factory in Tooele County. Service to the University of Utah has been expanded with 25 buses currently serving the campus. The expansion was a joint effort of UTA and the university, with the latter financing construction of bus pull-outs and shelters.

UTA purchased the operating rights for service to major ski areas from a private operator. UTA service will go into effect this winter with a private firm hired to run the UTA buses. A number of UTA's newest buses are specially

equipped to climb steep grades. Currently planned is a transportation center/ski center to be located south of Salt Lake. This center would be a base of operations for the ski buses with lift tickets and rental equipment available on site. The facility is intended to limit development in the canyons where further construction is both impractical and undesirable. UTA's marketing program, using a five-person staff, includes publication of new route schedules in newspapers, press releases about new services, and talks to senior citizen and other groups about available services. There is also a Telephone Information Center, staffed by several operators, who provide route and schedule information to the public. A Customer Service Division, with a staff of two, distributes schedules and answers customer complaints.

Recent capital grants have allowed the purchase of new bus shelters and signs. Currently, 25 new shelters with bus schedules posted inside have been put in place with 25 more to go. The UTA indicated some problems with local ordinances hindering the setting up of bus shelters in some areas.

WFRC's 1975 elderly/handicapped study recommended that UTA initiate a 24-hour notice fixed route service for elderly/handicapped individuals. Currently, there are two private operators, Ambu-Car and Serva-Car, providing transit for elderly and handicapped to social services in the area. The private service is quite expensive ($10 to $16 per trip) and out of the reach of many in need of it. Since Utah law forbids public competition with private carriers the new UTA service will be a 24-hour advance notice fixed-route service, as opposed to dial-a-ride service, in order to distinguish it from the private operations. The new UTA service will go into effect in the near future.

Institutional Climate

Since the UTA's 1972 expansion to cover Weber and Davis counties, transit ridership has increased almost 130 percent. Recent ridership increases have outpaced even the most optimistic estimates outlined in the consultant-prepared TDP.

This seems to have resulted from a fortuitous chain of events grounded in sound planning and pro-transit attitudes on the part of public officials. The formation of UTA and the takeover of the Salt Lake City Lines proved successful and provided impetus for further expansion.

The Section 9-funded TDP outlined concretely how this expansion could be accomplished. The Governor of Utah and

many local officials supported the expansion of transit. This supportive atmosphere paid off when voters approved the 1/4¢ sales tax subsidy, thus providing UTA with a solid financial base.

Section 9 funding has played a role in the revitalization although obviously there are other factors contributing to the success. The Section 9-funded TDP provided guidelines for the complex process of taking over the private operators. The alternative service improvements, spelled out in the report, provided local planners with innovative ideas and at the same time helped them evaluate options appropriate for the local area. The TDP gave necessary documentation to convince public officials and the public of the need for and vaiability of expended transit.

All of this has been accompanied by some growing pains. Until recently, short-range planning was of more concern than long-range planning. This was largely a result of the problems inherent in the rapid expansion of the system and total structural reorganization involved in the public takeover.

Public support of the Salt Lake-Ogden area transportation process appears to be strong. The passage of the 1/4¢ sales tax transit subsidy in three counties is indicative of citizen support, as is the continually increasing UTA ridership.

WFRC's structure is relatively open to citizen input. All meetings of the policy board, where final transportation planning decisions are made, are open to the public, and notices of these meetings are sent to over 200 special-interest groups. Locations of council meetings rotate from one county to another to allow for greater attendance. An annual public information meeting is held in the Salt Lake and Ogden areas to review changes in long-range plans and to get input from citizens. Over 3,000 agencies and special interest groups are notified of these meetings. In addition, special sub-area meetings are called when there are problems affecting only those areas.

WFRC also uses mass media to inform the public. Press releases are periodically issued on new transit developments. A quarterly newsletter, Communique, is distributed to agencies and special-interest groups. An annual transportation report is added as an insert to the local Sunday newspaper, reaching 350,000 homes.

The WFRC policy board is composed entirely of local elected officials. WFRC feels this ensures a high degree of responsiveness to the general public. However, there are indications that the system does not always function

smoothly. As mentioned before, the UTA found that several new WFRC-planned routes in suburban areas have sparked local protest from citizens who did not vote for the transit subsidy and do not want public transit in their neighborhood. Communication between these citizens and WFRC via local officials did not function properly, and UTA is now restructuring these routes.

Despite these frictions, the overall integration of citizens into the transportation planning process seems to have been accomplished. Although there may be some backlash from citizens who did not want to subsidize mass transit, there is general civic pride in transit.

## Conclusions

The recent history of the transportation planning process along the Wasatch Front demonstrates the transit success possible even in an auto-oriented city. Favorable attitudes towards transit on the part of public officials, press, and the public facilitated the formation of UTA, UTA's subsequent expansion, and the passage of a 1/4¢ sales tax transit subsidy. The Section 9-funded TDP documented the need for service expansion and the necessity of a stable source of local funding. UMTA's capital grants, particularly the latest grant for purchase of 206 buses, allowed implementation of increased coverage and frequency of service as recommended in the TDP.

A summary matrix is presented in Table 35.

TABLE 34. SALT LAKE CITY - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| UT-09-0003 | WFRC | $271,000 | FY72 |
| UT-09-0005 | WFRC | 150,000 | FY74 |
| UT-09-0007 | WFRC | 185,228 | FY75 |
| UT-09-0009 | WFRC | 148,000 | FY76 |

# TABLE 35. SALT LAKE CITY - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region IX

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 4 | 754K | 1972 |
| Capital, Section 3 | 5 | 24.4M | 1970 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | X | X | 7 | X | X | | 1972 consultant-produced 7-year TDP; has been updated. |
| Operational | X | X | | | X | X | Route modifications done by RTA. |
| Long Range | X | X | 20 | X | | | Long range planning highway oriented. |
| Modelling | X | | | | | | MPO has not done modelling; State formerly did modelling. |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | X | X | | X | X | | RTA recently received 206 new buses; no purchases planned. |
| Garage/Maintenance | X | X | | X | X | | New RTA headquarters completed. |
| Operational/Other | X | X | | X | X | | RTA has installed 25 bus shelters; will install 25 more shelters. |
| Park and Ride | X | | | | X | | Delays in implementation, park-and-ride planned. |
| **Service Improvements** | | | | | | | |
| Special Services | X | X | | X | X | | Downtown circulator service implemented, later discontinued. |
| Handicapped & Elderly | X | | | X | | | MPO plans for 24-hour notice fixed route service for E&H. |
| Demand Responsive | | | | | | | |
| Management | | | | | | | |
| Marketing | | | | | | | |
| Other | | | | | | | |
| Route Coverage | X | X | | X | X | X | Numerous route modifications, new routes. |
| Route Scheduling | X | X | | X | X | X | Numerous headway changes. |

## 5.17 SAN DIEGO, CALIFORNIA

### Demographic/Socio-Economic Background

San Diego County, generally recongnized as the birthplace of California, is situated at the southernmost extremity of California. Geographically, it is bounded on the north by coastal hills and mountain ranges, on the east by desert, on the south by the Mexican border, and on the west by the Pacific Ocean. Composed of 13 cities and numerous unincorporated areas, it has an overall population of 1.5 million and contains the third largest unincorporated-area population of any county in California. Its land area is over 4,000 square miles, or approximately four times that of Rhode Island, with an average density of 319 people per square mile. Employment is mostly white collar, with concentrations in the wholesale and retail trades and government services.

Center city San Diego is the major employment, cultural, and financial center of the region. With a population of nearly 800,000 it ranks as the second largest city in California and the ninth largest in the nation. Much of its growth has taken place in the last two decades. During the 1960's its population increased 124,000, and from 1970-1973 its growth rate was the highest among the nation's top 20 cities. Although its rapid growth has earned San Diego a reputation as a "boom town," recent years have seen a slowing of growth and a steady migration of people, jobs, and other attractions outside the center city. New development has occurred at low densities and in a "leap frog" pattern in other portions of the county due to topographic features of mountains, deep canyons, and washes.

### Transportation Characteristics

#### Trip Characteristics

Trips in San Diego County are generally long because of the separation of residential communities from employment, cultural, and shopping centers. Most trips are made by auto on a congestion-free highway system which connects nearly every urban and suburban community. Overall, there are 245 miles of freeway, 830 miles of regionally significant arterials, and over 5,000 miles of locally maintained collector and distributor type streets. San Diego's ratio of 17 freeway miles per 1000 residents exceeds that of Los

Angeles. By this criterion, San Diego ranks as one of the best providers of freeway service in the nation.

In contrast to the auto, travel by transit is slow. Operating speeds average 12 m.p.h. for local service and 25-30 m.p.h. for express bus. Headways are generally long (20-60 minutes) and some lines experience overcrowding. A passenger survey on two of the region's bus lines in 1974 indicated that 55 percent of transit patrons used the transit system 5 to 7 days per week; 58 percent were female; 19 percent were either below driving age or 65 years and over; and 75 percent indicated that they had no car available for their transit trip. Trip purposes were distributed as follows: 40 percent for work, 12 percent shopping, 16 percent school, 11 percent social and recreational, and 21 percent for other purposes.

## Transit History

Public transit has a long history of operation in San Diego. In 1886 the San Diego Streetcar Company operated several horsecar lines, and later electric streetcar service was introduced in 1889. Public bus transportation was not provided until after World War II when decreased patronage and increased maintenance costs doomed the operation of the electric streetcar. The region's first bus system, which was provided by the city of Oceanside, began service in 1946 with three surplus buses, five employees, and two routes totaling 10 miles. Three years later, in 1949, private bus service was initiated in the city of San Diego with the creation of the San Diego Transit System (SDTS).

Today four fixed route public transit operators provide service in the region: San Diego Transit Corporation (SDTC), North County Transit System (NCTS), Escondido Lines (ECL), and Chula Vista Lines (CVL). San Diego Transit System, which experienced a 42 percent decrease in ridership from 1960-1967, was bought out by the city of San Diego in 1967 and renamed San Diego Transit Corporation. Now operating as a nonprofit corporation of the city, it has increased its ridership 100 percent over the 1967 ridership levels. Oceanside Transit System, which did not experience declining ridership until the early 1970's, became known as the North County Transit System in 1975. It has more than doubled its routes and fleet size since 1975 and now provides service to about 75 percent of North County residents. Two other smaller public operators, Chula Vista and Escondido Lines, also provide local bus service. The characteristics of these operators may be seen in Table 36.

SDTC is the main operator in the county, providing approximately 90 percent of all bus service. It provides local and express service on 40 regular weekday routes in 9 cities and the County of San Diego. NCTS provides local and intercommunity routes primarily to North County residents and the large Camp Pendleton Marine complex. ECL and CVL, on the other hand, provide bus service within their respective cities only. Although local fixed route bus service was once provided to the cities of El Cajon and La Mesa, its low utilization prompted replacement with dial-a-ride service. In addition, dial-a-ride services are provided by the city and County of San Diego.

## Transportation Planning Process

### History

Modern transportation planning has been conducted in the San Diego Region for almost 25 years. It first began in 1952-1953 when local officials joined the California Division of Highways and the U.S. Bureau of Public Roads to conduct a roadside and dwelling unit origin-destination survey. In 1954, recognizing that transportation planning crosses political boundaries, an advanced transportation planning team was created composed of staff members of the state, county, and city governments. By 1958 the planning team completed the area's first set of transportation surveys, analyses, and forecasts.

During the 1960's the transportation planning process expanded and underwent various re-organizational schemes. In response to the Federal Highway Act of 1962, which required a formal planning organization, a joint powers agreement was signed (1963) among the County, unincorporated cities of the County, the Unified Port District, and the State Division of Highways. Subsequent joint powers agreements were signed in 1966 and 1972 and included all 13 incorporated cities of the County. The result was the creation of the Comprehensive Planning Organization, an independent planning agency charged with preparing a comprehensive land use and transportation plan for the San Diego Region.

## Goals

The basic transportation goals for the San Diego Region were the result of an intensive effort in 1971 by CPO to identify basic land use, transportation, aesthetic, and other related goals for the San Diego Region. Over 400 civic, planning, and interest groups provided input for the identification of the goals. In addition, a series of 12 sub-regional meetings were held to solicit the views of the general public. The adopted goals and implementation policies reflect a concern for a coordinated multi-modal transportation system that would provide a choice of travel mode, minimize adverse social and economic effects, and reinforce local growth and development policies. In sum, the basic goals are:

To provide for a mix of transportation modes

To comprehensively plan and implement all regionally significant modes at the regional level

To develop a balanced land use and transportation plan

To provide a transportation system that is safe, flexible, and environmentally pleasing.

## Agencies

The Comprehensive Planning Organization (CPO) is the designated metropolitan planning organization for the San Diego Region. Serving as a voluntary association of governments, it was founded to assure sound overall areawide planning. Its members include the County of San Diego (representing unincorporated areas), the 13 incorporated cities (Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Escondido, Imperial Beach, La Mesa, National City, Oceanside, San Diego, San Marcos, and Vista), the Unified Port District, and the California Department of Transportation. It is responsible for system wide regional planning, while subregional studies and actual program implementation are the responsibility of various functional operating agencies. Although it approves and recommends region-wide plans, CPO does not have the power to tax, legislate, or enforce adopted policies.

Other participants in the planning process include the County of San Diego, the City of San Diego, and the California Department of Transportation. Planning staff

members from these jurisdictions/agencies have day-to-day involvement in regional planning activities through a joint staff arrangement worked out with CPO. Two sub-regional Metropolitan Transporation Development Boards (MTDB), created by the California State Legislature on January 1, 1976, will also play important roles in future transportation planning. MTDB "South" will be mainly responsible for planning and operating a fixed guideway system for San Diego. MTDB "North," on the other hand, is restricted to near term operational and financial planning for the NCTS.

The formal coordination of the multitude of agencies and government jurisdictions is accomplished through CPO's extensive committee structure, which provides for participation by operators, local officials, state officials, special interest groups, and technical representatives from local jurisdictions. There are two categories of committees: Primary, which oversee major categories of the planning program, and Subcommittees, which are appointed to advise staff and consultants on specific ongoing projects. Decision making responsibility, however, is held by the CPO executive committee, which is composed of one re-presentative appointed by each of CPO's 14 general purpose government members. Generally, voting takes place under a one agency - one vote formula except for certain issues for which a weighted voting formula is used.

Technical Studies Grants

To date the San Diego Region has been the recipient of six Technical Studies Grants totaling approximately 3.1 million dollars. The local share of these grants, which has varied from 20 to 33 percent, has been provided by the County of San Diego and the 13 member jurisdictions of CPO. The recipient, amount, date of award, and duration of these grants are shown in Table 37.

CPO used consultants to carry out planning grant studies which developed mode-split and urban development models and completed major portions of the regional short and long range plans. Planning grant money has also generated marketing and management plans, specialized studies of the elderly and handicapped, recommendations for a park-and-ride program, and development of regional dial-a-ride guidelines.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

CPO presently employs over 60 professionals with expertise in all facets of comprehensive planning, augmented by 8 planners from the California Department of Transportation, 5 San Diego County planners, and 2 City of San Diego planners. Although "on loan" they work directly with CPO personnel on a permanent full time basis. Staff capability has also increased because of the extensive use of consultants.

Since the receipt of the area's first Technical Study Grant, in 1970, planning improvements have included:

Development of short, long range, and multi-modal transportation plans

Creation and maintenance of a Regional Information System

Development of operational planning capability

Comprehensive Land Use-Transportation Studies

Updating and revising Capability

Technical Studies Grants have supported three major short range (5-10 year) plans for the San Diego Region. In 1970, using a transit survey data base completed in 1969, a 10 year transit improvement program was prepared for the region. The plan contained major recommendations for management and route changes and a staged 10 year fleet and service expansion program. Upon completion, it qualified the San Diego Transit Corporation for UMTA Capital Grant requests.

Two short range (5-year) plans have since been prepared for the metropolitan San Diego Region. The North County Transit Study, completed in 1973, recommended a major expansion of bus service for North County residents. Likewise, a Transit Development Plan and Program completed in 1975 recommended major service expansion for SDTC, which operates mainly in the south portion of San Diego County.

In the area of long range planning, a 20-year Transit Development Program was prepared in 1975. The plan investigated six transit options for the region, ranging

from the present local bus system to the possibility of implementing a fixed guideway system in 1985, based on cost benefit analyses, estimates of patronage, revenues, maintenance, and capital costs. The plan recommended staged implementation of a 59-mile grade-separated fixed guideway system and improved local bus service.

Technical Studies Grant funds supported the development of a regional multi-modal transportation plan. The plan, adopted in 1975, contains policies, plans, and programs to coordinate transportation improvement among government levels. It proposes locations for transportation routes and facilities, short range programs for immediate improvement, and a time-phased program for financing the proposed system in a 20-year framework.

Both short and long range planning has been facilitated by CPO's development and maintenance of an extensive Regional Information System (RIS). This system supplies computer tools for statistical manipulation of information files which describe the social and physical status of the region, and a planning model system for transportation land use planning. UMTA funds supported the latter task in developing Mode Split and Urban Development Models.

Operational since 1972, the Mode Split model estimates future travel demand by mode. The Urban Development Model distributes regional employment and population forecasts into regional subareas. These models facilitate alternatives analysis to test the desirability of three regional development policies: controlled trends, radial corridors, and multiple activity centers. Based on these applications, development policies have been selected and are now part of the area's comprehensive regional transportation plan and implementation policies.

Transit operators have used the Regional Information System for operational planning. RIS maintains a current and accurate DIME geographic base file which allowed CPO to develop a Transportation Analysis and Evaluation (TRANES) computer program. TRANES assists operators in evaluating the service of bus stop and route locations.

RIS has been used in short range plans to evaluate the operating efficiency and financial status of transit operators. For example, RIS assisted in developing operational guidelines for bus service, including standards

for walk, wait, and transfer time, seat availability, comfort levels, and passenger safety.

All transportation studies have used a comprehensive systems framework to integrate transportation and overall planning. Planning grants supported the CPO's investigation of growth management strategies in light of regional concern about rapid population growth. Specific studies determined the effects of the proposed regional transit system on localities influenced by the regional transit system's access points; transit's relationship to industry, residential, and shopping center location; and fiscal equity among the region's jurisdictions.

## New Capital Acquisitions

During past 20 years, the annual capital expenditure for state highways and transit in the San Diego Region averaged $70 per capita. Per capita expenditure for freeway construction was $68 a year, compared to 90¢ for buses and other transit expenditures. This bias in favor of highway construction produced a freeway system whose development outpaced the regional growth and which provides faster travel times than transit.

The San Diego Region's transportation plans emphasize expanded local and regional bus service as well as a fixed guideway system. Implementation requires a transit expenditure of $40 per capita. This major shift in county transit and highway funding priorities, as well as past expenditure trends, may be seen in the figure at the end of this case study.

San Diego County's recent emphasis on accelerated transit implementation acquisitions has been stimulated by Technical Studies Grants for planning. The short range plans recommendations since 1970 produced a major fleet expansion for the area's two largest transit operators, new facilities construction, and purchase of equipment to improve bus service.

## Fleet Expansion

When the city of San Diego bought out the San Diego Transit System (SDTS) in 1967 and renamed it SDTC, its bus fleet had diminished to 216 coaches. This represented a 24 percent decrease over the 1960 level of 284 coaches. Since

SDTC assumed operations, a staged bus fleet expansion program occurred increasing fleet size to 350 by 1975. In FY 76, SDTC is requesting another 43 new 51-passenger buses. The bus purchases have allowed retirement of outmoded buses and implementation of an expanded service level. The 1980 fleet size will be 480 buses.

The North County Transit System (NCTS) has also had a major increase in fleet size. In 1974, 1 year before the expansion of the Oceanside Transit System into NCTS, its bus fleet numbered 24. Based on the short range North County Transit Study's recommendation fleet size doubled to 50 in 1975. The new buses are of two varieties, 15- to 25-passenger and 45-passenger vehicles, providing a fleet mix for varied service levels. By 1980 the NCTS fleet will stabilize at 63 vehicles.

Other transit capital improvements include registering fareboxes, mobile radios, and bus stop signs and posts for improved public information.

Proposed transit capital acquisitions identified in the recent Transportation Improvement Program (TIP) include construction of bus turnouts, a mini-terminal, transit shelters, and a passenger transfer facility. Funding for these latter projects will be provided by Federal Aid to Urban Systems (FAUS) funds.

Facilities Construction

Based on the recommendation of the first TDP, a new administrative and maintenance building has been constructed for SDTC, and the city of Oceanside has constructed a new maintenance facility in North County.

Because of the recent rapid increase in SDTC fleet size, planning identified a need for a second garage and maintenance facility. In planning for this facility, it is recommended that a site location in another part of the county be chosen to reduce "deadhead" bus travel and act as a joint bus terminal and park-and-ride facility.

A recent planning study recommended a staged implementation plan for park-and-ride facilities in the San Diego Region. Ten park-and-ride sites were recommended for implementation over a 5-year period. The 1976 TIP requires implementation of 2 park-and-ride facilities including a

facility for 300 to 500 vehicles in El Cajon and a 200-space facility in La Mesa. Land acquisition costs will be funded by FAUS funds. UMTA Section 3 funds will be used for site construction costs.

Finally, a large proportion of future transit expenditure has been earmarked for the construction of a 59-mile fixed guideway system proposed in the region's long range (1975-1995) Transit Development Program. The plan calls for 15 miles of guideway to be built by 1985, 35 miles by 1990, and completion of the 59th mile in 1990. Preliminary cost estimates for both fixed facilities and vehicle fleet include $203 million over the next 5 years, $314 million for 1980-1985, and another $1.1 billion by 1995.

### New and Improved Services With Existing Facilities

Historically, route and service expansion of public bus transportation has not kept pace with San Diego's rapid population growth. New development in northern portions of the county has been difficult to serve by transit because of low densities and topographical features which produce broken and indirect street patterns. Until 1975, for instance, 75 percent of the population in the North County area were not within walking distance of any transit service. Likewise, although routes expanded in metropolitan San Diego, expansion was not at the same rate or intensity as population growth. Since 1970 public bus transportation has undergone an accelerated program of route expansion and new service improvements for both the northern and southern portions of San Diego County. Improvements have centered on route changes and expansion, management efficiencies, expanded marketing and public information programs, and planning for new commuter and specialized demand responsive service levels.

### Route Changes

The 1970 TDP recommended four revised routes, three new routes, and four extended routes for SDTC. These changes were aimed toward adding new service, eliminating unproductive portions of certain routes, and providing new service to rapidly growing areas in North San Diego. A more systematic and comprehensive route analysis was completed as part of SDTC's Action Plan for FY 74-75 and recommendations were incorporated into San Diego's short range plan. Over a 5-year period, 29 headway reductions, 7 route extensions,

and 15 new routes are planned (including 5 express service routes). The changes are aimed at relieving overcrowding conditions, introducing new service, and realigning unproductive routes.

Pursuant to the recommendations made in the North County Transit Study in 1973, new and expanded service has been implemented in the North County. In Oceanside, which had minimum bus service since 1946, existing routes were modified to increase area coverage and headways were reduced. In addition 4 new intercommunity routes and 17 new routes were implemented in 5 communities without previous transit service (Carlsbad, Escondido, San Dieguito, San Marcos, and Vista). It is estimated that 77 percent of North County residents will be served by transit, a tripling of the service level.

## Management Efficiencies

A planning grant management study in 1974 recommended management efficiencies for SDTC and NCTS. Recommended areas of improvement included:

- Simplified administration and communication
- Uniform budgeting forms
- Development of maintenance guidelines
- Management training programs
- Manpower planning
- Development of formalized reporting systems

## Specialized Service

Recently, emphasis has been placed on developing specialized services to benefit elderly and handicapped and the large San Diego commuter population requiring park-and-ride sites. The travel needs of the elderly and handicapped population were investigated. A survey of social service agencies revealed existing fixed route and social service agency transportation was inadequate. Unmet elderly and handicapped travel needs were calculated to be 40,000 trips per day, most of which would require door to door service. The recommended program for service improvement includes:

- Coordination of present social service agency operations and expansion of available fleet

Acquisition by conventional transit operators of coaches with special features for fixed route service

A new program of door-to-door shared ride service utilizing taxi, vehicles with and without lifts, etc.

Reflective of the continued need for demand responsive service in the San Diego Region, the Technical Studies Grant Program supported development of general performance guidelines, system design criteria, and evaluation guidelines for potential dial-a-ride service. The study produced a "how to" guide to assist communities in evaluating service levels, potential costs, and operational effectiveness of the proposed dial-a-ride systems.

Marketing and Public Information

The transit operators have instituted vigorous marketing and public information programs to promote transit service and inform the public of new bus route and schedule changes. Based on the recommendations in the 1970 TDP, SDTC has marked bus stop locations with time, destination, and schedule information; bus stops are now identified by red curb markings; a flat (no zone) fare policy has been implemented; and media advertising is utilized for new service changes. Likewise the new NCTS system has utilized marketing guidelines developed in the North County transit study; NCTS has used newspaper advertising to inform the public of new routes and schedules and has recently offered free fares on some routes to allow citizens to get acquainted with new service.

The Technical Studies Grant Program supported a comprehensive marketing study which identified market segments with increased transit use potential and determined how price changes, promotion, and service contribute to increased transit usage.

Institutional Climate

Concern over the economic and fiscal impacts of population growth resulted in early multi-jurisdic-tional planning efforts in the San Diego Region. The evolution of the Comprehensive Planning Organization, a commitment toward a comprehensive Planning program, and the adoption of a multi-modal transportation plan illustrate this cooperative regional planning approach. The institutional climate of

planning has been characterized by: (1) an exhaustive effort by CPO to provide for informational and participatory mechanisms for citizens, appropriate government agencies, transit operators, and special interest groups, and (2) a recent fragmentation of geographic and short and long range planning.

There has been a long and continued effort to solicit the views of the region's citizens. During the regional goals program in 1971, for example, over 400 civic, planning, and other groups were contacted and many public meetings were held. Periodic attitude and opinion surveys are also used to determine attitudes and opinions on growth, the economy, and transportation. Citizens have also participated in many public hearings and transit workshops. In addition, CPO has met with more than 100 special interest and community groups to introduce them to the transportation planning program and regional development alternatives.

As part of the public communications and information program, citizen input and formal participation have been encouraged through the following mechanisms:

A mailing list sent to a sample of the registered voters advertising meeting times and locations

Regular press briefings

Flyers sent to special interest groups and placed in public places

An annual report aimed at a nontechnical audience

A newsletter distributed by CPO oriented toward public officials and other constituencies

A monthly calendar of meetings of events

The planning process has been characterized by a close cooperative relationship among transportation planning agencies. The joint staffing arrangement by CPO and planners from the city of San Deigo has resulted in early issue identification, minimization of controversy, and improved consensus on proposed plans and policies. In addition, CPO's extensive committee structure provides for input of affected agencies and groups on at least a monthly basis. Finally, a recent decision to "pass through"

planning funds to the transit operators for short range planning development will tighten the link between operational and policy planning.

The planning process has had institutional problems. At one point, the County of San Diego withdrew from CPO membership in a disagreement over the weighted voting formula used by CPO's Executive Committee. In addition there has been some bitterness because of CPO's separation from the County Planning Department in 1972. Although compromises have since been worked out, and planners from the County work directly with CPO staff, the County Board of Supervisors supports continued CPO membership for the County by a slim 3 to 2 margin.

The region's committment to a fixed guideway system gave impetus to the creation of two sub-regional Transit Development Boards. On January 1, 1976, state legislators enacted SB 101, which created the Metropolitan Transit Development Board (MTDB), and SB 801, which created the North County Transit Development Board (NCTDB). Within its respective jurisdiction, MTDB was created specifically to plan, construct, and operate a transit guideway in the County. NCTDB, on the other hand, was given responsibility only for near term operational and financial planning for the North County Transit System.

## Conclusions

San Diego is a good example of how transportation planning may be integrated with overall regional planning in a comprehensive systems framework. It has been shown here that transportation planning can play a major role in increasing public transit service and in the evaluation, selection, and attainment of appropriate regional development policies. Reflective of this comprehensive framework, major short range, long range, and multi-modal plans have been adopted which support economic, environmental, and growth policies.

Planning has encouraged improvement of service through recommended fleet expansion, facilities construction, and other upgrading.

Planning success is evidenced by a 100 percent increase in SDTC ridership, the area's major urban carrier, and the tripling of service levels in the North County area. In the

future, marketing and plans for increased service for the elderly and handicapped and the large San Diego commuter population promise to further increase travel by transit by providing a service level competitive with that of the auto.

See the summary matrix, Table 38.

TABLE 36. SAN DIEGO - EXISTING TRANSIT SERVICE, 1975

| TRANSIT OPERATOR | BUS FLEET | ANNUAL RIDERSHIP (THOUSANDS) | ANNUAL VEHICLE MILES (THOUSANDS) |
|---|---|---|---|
| San Diego Transit Corporation | 350 | 29,000 | 15,000 |
| North County Transit System | 50 | 2,500 | 3,200 |
| Escondito City Lines | 10 | 375 | 400 |
| Chula Vista City Lines | 5 | 300 | 260 |

TABLE 37. SAN DIEGO - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| CA-T9-8 | City | $46,600 | 1969 |
| CA-09-0014 | County | 309,000 | 1970 |
| CA-09-0023 | CPO | 1,452,000 | 1972 |
| CA-09-0037 | CPO | 722,000 | 1974 |
| CA-09-0043 | CPO | 875,000 | 1975 |

# TABLE 38. SAN DIEGO - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region IX

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 5 | 3.4M | 1969 |
| Capital, Section 3 | 6 | 16.2M | 1970 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | x | x | | Integrated study team approach; pass thru $ to operators. |
| Operational | x | x | 5 | x | | x | Mainly done by operators; extensive SDTC Action Plan. |
| Long Range | x | | 20 | | x | | Multimodal; evaluated fixed guideway; contains CPO policy. |
| Modelling | x | x | | x | x | | Use in Alternatives Analysis; Mode Split & Urban Development. |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | | | x | x | Increase for service expansion; doubling of NCTS fleet. |
| Garage/Maintenance | x | x | | | x | | New facilities for both North and South County. |
| Operational/Other | x | x | | x | x | x | Signs, shelters, fareboxes, RUCUS,ARCOM, radios, etc. |
| Park and Ride | x | | 5 | | x | | Staged implementation plan for FY 76-81 implementation. |
| **Service Improvements** | | | | | | | |
| Special Services | x | | | | | x | Buses retrofitted with wheel chair lifts; bicycle racks. |
| Handicapped & Elderly | x | | | | x | | Assessment of unmet needs; 3 part program recommended. |
| Demand Responsive | x | | | | x | | Planning, design, & implementation guidelines for D-A-R. |
| Management | x | x | | | x | | Budgeting, maintenance, information systems, personnel. |
| Marketing | x | | | | x | | Extensive marketing analysis guidelines by consultant. |
| Other | x | x | | | x | | Fare level, attitude surveys; citizen participation, etc. |
| Route Coverage | x | x | 5 | x | x | x | Numerous route changes; tripling of service for NCTS. |
| Route Scheduling | x | x | | | x | x | Includes development of system operating times for NCTS. |

## 5.18 SEATTLE, WASHINGTON

### Demographic/Socio-Economic Background

The Central Puget Sound region contains all of King, Kitsap, Pierce, and Snohomish Counties and all of the Seattle-Everett SMSA and the Tacoma SMSA. The area encompasses 6,700 square miles and 1,934,000 persons as of the 1970 census. The populations of the central cities and counties are:

| Cities | | Counties | |
|---|---|---|---|
| Seattle | 580,831 | King | 1,156,633 |
| Tacoma | 144,581 | Pierce | 411,027 |
| Bremerton | 35,307 | Kitsap | 101,732 |
| Everett | 53,622 | Snohomish | 265,236 |

The population in the unincorporated areas of the four county region is 753,336, 39 percent of the region's population.

The City of Seattle experienced a decline of 5 percent in population between 1960 and 1970, while the overall Seattle SMSA experienced an increase of 29 percent. The densities of Seattle and its urban area are 6,350 and 2,997 persons per square mile, respectively.

The area is a major center for transportation, trade, commerce, lumber, warehousing, banking, manufacturing, and recreation. The leading industry in the Seattle economic base is aircraft manufacturing, with Boeing the major employer. Shipbuilding and forest products are the next major sources of employment.

The proportion of families below the poverty level was 6 percent in 1970, below the national average for major U.S. cities. The per capita income and the percent of households with at least one car are $3,188 and 84 percent, respectively.

## Transportation Characteristics

### Trip Characteristics

Declining population densities have taxed the transportation system of the region. The number of persons commuting to work in the City of Seattle from suburban areas increased by 78 percent from 1960 to 1970. Concomitantly, with increasing employment growth in suburban Seattle, the number of entirely suburban work-related commuting trips increased by 64 percent. Changes in residential and nonresidential land use patterns resulted in a 50 percent increase in automotive commuting, while public transit commuting declined by 19 percent over the same period. By 1970 only 14 percent of all work-related commuting trips were made by public transit, and Seattle ranked 18th with respect to public transportation use for commuting of the largest 28 SMSA's in the nation.

Since 1970 the region has opted for a balance between public and private transportation. Adopting an innovative and competitive system of public transit, notably in the City of Seattle, the erosion of public transit ridership has been stabilized since 1972. Furthermore, transit service has increased; in 1972, 16.4 million vehicle-miles were provided, and by 1975, 23.3 million.

The Washington State Ferry System carried 6,460,292 passengers on lines within the Puget Sound region in 1973, an increase of 10 percent over 1972. Of this total 1,591,033 were commuters, an increase of 11 percent over 1972. In addition to the four publicly-owned bus systems, there are privately-operated bus lines in the Tacoma and Bremerton areas. There is also a new Satellite Transit System PRT at the Seattle-Tacoma Airport, which handled approximately 2.5 million passengers during the second half of 1973.

### Transit History

In 1919 Seattle acquired the privately-owned streetcar system at such an inflated price that no new streetcars were purchased for the next 20 years. In 1940, a Reconstruction Finance Corporation loan permitted the City to modernize the system by abandoning the streetcars and purchasing hundreds of buses. These acquisitions enabled the Seattle Transit System (post-1939 name) during its peak years to handle about 130 million passengers annually. In 1963, most of the trolley-coach operation was discontinued, except in an inner-city area near the CBD. Because of public pressure, new trolley-coaches will be purchased and routes abandoned since 1963 reactivated.

Three major transit funding proposals have been put to the voters. One in 1968, and another in 1970, failed. A third in 1972 passed. Voters approved a referendum to establish a 3 percent tax to support public transit in King County (Seattle). The Municipality of Metropolitan Seattle (Metro) was established as the public transit operator in King County, taking over the responsibilities of the Seattle Transit System and Metropolitan Transit, a private operator. Annual transit ridership has risen from 31 million to about 35 million in the last 3 years. Most of this increase is due to Metro's operational changes and aggressive marketing program.

## Transportation Planning Process

### History

The development of coordinated and comprehensive regional transportation and land use planning capacity for the Puget Sound Region has been a continuing process for many years.

Origin-destination traffic surveys, conducted for Seattle and Tacoma during 1946-48, recognized the need for an areawide data base as a prerequisite for highway system planning.

In 1957, the four counties of the Central Puget Sound region -- King, Kitsap, Pierce, and Snohomish -- established the Puget Sound Governmental Conference (PSGC) as an organization of elected officials to study areawide problems of mutual interest and to develop plans and programs. In 1959, membership was extended to the central cities of each county -- Seattle, Tacoma, Bremerton and Everett. The PSGC became the regional Council of Governments (PSCOG) for the Puget Sound Region including both the Seattle and Tacoma SMSA's in 1973.

During 1961-1965, the PSGC conducted the Puget Sound Transportation Study with the Washington State Highway Commission (WSHC), as an outgrowth of its regional planning objectives. Origin-destination studies (1961), land use inventories (1961), and transportation facilities studies were used to develop simulation models. Highway and transit proposals were tested and evaluated for two alternative land use plans. As a result, the PSGC adopted a highway system plan in 1966 as a guide for future development.

The same year, a Regional Transit Plan was prepared and adopted. It was amended in 1967 and 1970 to include recommendations for public transportation in the Seattle Metropolitan area. An updated version of the plan was

adopted by the PSGC in 1972, reflecting changes in employment and population projections and community values.

The Interim Regional Development Plan (IRDP) adopted by the PSGC in August 1971 was a guide for the development of the region. Intended to be a composite of the separate plans of local jurisdictions, the regional plan conflicted with local plans and priorities, and never was adopted by the local jurisdictions. The failure to make this an effective working document contributed to the decertification of the PSGC by HUD.

On July 1, 1975, the PSCOG reorganized and established subregional policy groups (county-oriented) to balance the regional perspective of the PSCOG.

Pierce and Snohomish Counties withdrew from the PSCOG as of September 30, 1975, and King County withdrew effective December 31, 1975. This raised issues involving representation, financial support, and planning participation. With the withdrawal of the three counties, there is active participation by governments representing only 45.5 percent of the region's population. Seattle, Tacoma, Everett, and Kitsap County remained in the PSCOG.

Goals

An implicit goal in much of the PSCOG's land use and transportation planning is the continued development of land use and transportation to promote the vitality of existing urban centers, notably Seattle. Complementary with this goal is directing land use and economic growth to existing urban areas as opposed to rural and agricultural areas on the urban fringe. Stated goals are:

1. To develop and endorse a regional growth policy that will sustain a viable economy and will guide necessary development in such a way as to maintain and enhance the quality of life.

2. To maintain and improve the cability required to carry out an ongoing planning system as a means of achieving better use of resources, overcoming the problems of waste and pollution, and maintaining the value of investments in urban and rural development; to develop and update regional systems plans as required by Federal and State legislation and agreements by local elected officials; and to maintain Federal certification for Federal funding assistance.

3. To foster cooperation and mediate differences among governments throughout the region; to provide a forum where local elected officials can address regional problems and review proposed actions within the framework of a continuing planning process; and to facilitate coordinative mechanisms for implementing areawide plans.

4. To provide technical services and assistance to agencies within the region; to provide initiative and coordination on subregional, multi-jurisdiction planning studies of areawide significance.

Agencies

In the Central Puget Sound region, the PSCOG is responsible for comprehensive planning, areawide transportation planning, and regionwide intermodal transportation system planning, while subregional transit planning and programming is conducted by the transit operating agencies. These operating agencies and the areas they serve are:

| | | |
|---|---|---|
| 1. | Seattle Metro | King County |
| 2. | Tacoma Transit | City of Tacoma |
| 3. | Everett Transit | City of Everett |
| 4. | Washington State | Cross-Sound Travel |
| 5. | Snotram Ferry System | Snohomish County |

In addition, the State Highway Department is implementing transit-serving facilities through work on the location, design, and construction of park-and-ride lots, freeway-flyer stations, and exclusive bus lanes and ramps.

PSCOG

The Puget Sound Council of Governments (PSCOG), the regional A-95 review agency, is the officially designated coordinator of regional transportation planning and the metropolitan planning organization (MPO) to receive planning funds for urban transportation.

The PSCOG is well-organized and staffed to coordinate transportation planning for the region. The transportation

division of the PSCOG consists of approximately 14 transportation planners, including 4 senior transportation planners. Additionally, there are approximately 15 regional planners, including 1 senior regional planner. The staff is organized into three line divisions: research, land use and environmental planning, and transportation planning.

Effective July 1, 1975, the PSCOG consisted of a council, an executive board, and four subregional (countywide) councils. The council, composed of elected officials from the four-county area, represents the entire region and determines general policy. The council is balanced by the four subregional ccuncils, which interpret and specify policy as they deal with particular cases. They also perform the A-95 and EIS reviews for their respective counties. The executive board determines the relationships between regional policy and the issues, and the council and subregional councils.

Metro

The Municipality of Metropolitan Seattle (Metro) is the principal public transportation operator in Seattle and King County. Service also is provided to Tacoma, Everett, and south Snohomish County. It has a ccuncil composed of elected officials representing component governments. Following authorization by the voters in 1972 and effective January 1, 1973, Metro assumed responsibility for planning and operating public transit, and acquiring and merging Seattle Transit and Metropolitan Transit Corporation.

Metro operates over 20,000,000 miles annually over more than 100 routes, with a fleet of approximately 528 diesel- and gasoline-powered buses and 59 trolley-coaches; it carried over 35 million passengers in 1974. Metro's service area encompasses 60 percent of the region's population and 67 percent of its employed workforce. In 1974, Metro carried 79 percent of the public mass transportation riders in 79 percent of the region's buses. It is expected Metro's expansion and improvements will be completed by 1980, supported by federal grant assistance at a cost of $161 million to UMTA. Forty-five million dollars has been approved, and $52 million is pending approval.

Metro transit is supported by fare box revenues, a 0.3 percent local sales tax, and an automobile excise tax. Metro has received approximately $375,000 or 20 percent of the total UMTA Section 9 Technical Study Grant funding to the region. Metro has participated with PSCOG in the Coordinated Support Program, whereby UMTA Technical Studies Grants are passed through to Metro to support subregional

transportation planning. Metro also has received direct Technical Study Grant funds from UMTA.

Other Agencies

The Puget Sound area has numerous regional planning jurisdictions. There are 17 federal programs that require intergovernmental cooperation in the region. Eight multi-disciplinary organizations make demands on the region's elected officials. In addition to PSCOG and its three federal programs (MPO, ADP, and A-95) there are at least seven others, including organizations for economic development planning, air pollution control, and health planning.

Technical Studies Grants

From 1967 to the end of fiscal year 1976, Technical Studies Grants to the Seattle-Tacoma-Everett region totaled approximately $2,380,000. Since fiscal year 1973, the PSCOG has been funded through the Integrated Grant Application (IGA) process. It has received approximately $1,838,000 of its Technical Studies Grants through this process. Of that amount $754,000 has been in continuing funding for PSCOG and $1,084,000 in pass-through funds for subregional transit planning by local jurisdictions and public transit operators. (See Table 39.)

Pass-through funds for subregional planning and programming by local jurisdictions and operators are provided through the Coordinated Support Program (CSP). Under the CSP, local jurisdictions and operators propose program elements to be included in the UWP prepared by PSCOG. If these subregional elements are consistent with the TDP and regional plans and priorities, and if sufficient resources are available, the PSCOG includes the subregional elements in the UWP and Technical Study Grant proposal.

When the proposal is funded by UMTA and the CSP, related funds are passed on to the appropriate local jurisdiction or operator by the PSCOG.

Technical Studies Grants WA-09-0001 (1967) and WA-09-0003 (1970) to the City of Seattle were used for preliminary engineering for a 10-mile, grade-separated rail transit system and a study of existing transit service in the Model Cities neighborhood, respectively. These studies updated the King County portion of the transit system plan by expanding the rapid transit component and further defining the feeder-bus routes.

The plans resultant from WA-09-0001 were fundamental to proposals for a grade separated commuter rail system. In two separate referendums for local sales tax levies to support the commuter rail proposal (1968 and 1970), the voters of Seattle opposed the commuter rail proposal and the taxes.

WA-09-0005 (1971) was the first Technical Study Grant received by the PSGC. Major products included: (1) an update of the 1966 Regional Transit Plan (adopted in 1972), including short-range plans for Seattle, Tacoma, Bremerton, and Everett; (2) a subarea study for the City of Bellevue; and (3) a King County/Metro comprehensive transit plan.

The King County transit plan, which did not have a commuter rail element, was developed using the results of WA-09-0005. This plan provided the basis for the successful transit election in 1972 that authorized Metro, the major public transit operator in the region.

WA-09-0006 (FY73) was the first section of monies provided through the Integrated Grant Application process. The PSGC received $65,000 for continuing planning work, and $454,000 in pass-through funds was distributed to transit operators and subregional planning agencies in Seattle, Tacoma, Bremerton, Snomet, and Renton. The Metro and Seattle share was approximately $320,000. At the end of the fiscal period, five projects totalling almost $200,000 had not been initiated. These projects included site-specific studies to refine the regional and metropolitan transit plans developed under WA-09-0005 (1971).

WA-09-0008 (FY74) provided only continuing planning support to PSGC; no coordinated support or pass-through funds were provided because of the unspent CSP funds from FY73.

The I-90 controversy influenced the use of UMTA Technical Study Grant funds. Monies programmed to prepare a Regional Development Plan to replace the disputed Interim Regional Development Plan were diverted to study the "no build" alternative to I-90. Detailed corridor studies were held up, and the funds used instead for the study of I-90 and to prepare the 1990 Transportation Plan.

This grant was the first to earmark funds for the PSGC to manage the CSP projects left over from the previous year.

WA-09-0010 (FY75) included $200,000 in planning support to the PSCOG and $422,000 in CSP projects.

The PSCOG used UMTA funds to support an interdisciplinary planning process developed with academic

skill in the social sciences for the first time in contrast to typical functionally oriented planning. Major activities supported included regional policy development and analysis; regional policy interpretation and areawide certification; and regional coordination, review, and local government services.

There were eight CPS projects including: $139,260 used by the PSCOG for two phases of withdrawal and mass transit substitution studies related to I-90; support for Snohomish County to initiate its transit program; funds to Seattle, Metro, and King County for studies of elderly and handicapped.

WA-09-0012 (FY75) was awarded directly to Metro late in the fiscal year to evaluate the impact of the Seattle Magic Carpet Service. The Magic Carpet is a no-fare transit (bus) system, which began operating in a 105-square-block area centered on the Seattle CBD in September 1973. Service is provided on a continuous 24-hour basis. The consultants, Toner Associates, Yuden Associates, and Russ Dawson, performed opinion surveys and analyzed business impacts of the system.

Questions were raised by the PSCOG concerning this UMTA grant to Metro because there were important areas requiring study that were not funded (e.g., transit needs in Pierce County around Tacoma and additional transit studies in King County). PSCOG felt the grant was not consistent with regional priorities because it was outside COG which coordinates efforts.

WA-09-0013 (FY76) included $250,000 in direct funding to the PSCOG and $208,000 to the transit Coordinated Support Program. One-half of the CSP funding was used to develop TSM elements, including an analysis of low-capital alternatives for short-range transit improvements, energy conservation, and a transit delay reduction study.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Because of the operational distinctions between regional and subregional, and long and short-range transportation planning responsibilities, assessing the evolution and current state of transportation planning proficiencies is a complex task.

Prior to UMTA Section 9 Technical Study Grant assistance, PSCOG experience in and emphasis on transit planning and programming were minimal, although the PSCOG

has had an extensive professional transportation planning staff. Since the initiation of UMTA Technical Studies Grants supporting transportation planning by the PSCOG, the proficiency of the transportation planning staff in multimodal planning has improved considerably.

Recent events have taxed the professional transportation planning resources of the PSCOG. Approximately 70 percent of total staff resources have been diverted to respond to the recent controversy surrounding integration of transit with I-90, PSCOG membership, increased need to coordinate with citizen groups, and recent changes in UMTA regulatory and certification requirements.

However, these recent events may actually enhance transportation planning efforts. The I-90 issue concerns efforts to achieve multi-modal integration. Citizen participation and coordination is essential to responsive transportation planning. UMTA regulatory requirements have contributed to a sound regional transportation planning effort.

Short-range transit planning in King County is the responsibility of Metro by interagency agreement with the PSCOG. Because of its independent local financing (0.3 percent sales tax), financial support through the CSP, and a recent (1975) direct Technical Study Grant from UMTA (WA-09-0012), Metro has substantial planning resources. The resources have been utilized to develop a professional transportation planning capability that is comprehensive in scope and not simply subregional or short term. As an operating agency Metro has utilized its potential to implement technical study recommendations through capital acquisitions and transit operations. The Magic Carpet free downtown circulator system is an example.

Subregional transit planning is supported by the Coordinated Support Program. The CSP funds subregional studies by local operators and jurisdictional agencies, such as the City of Tacoma Department of Transportation. In most instances the CSP elements are contracted to consultants, since, with the exception of Metro, subregional agencies have limited transportation planning capabilities.

### New Capital Acquisitions

The short-range emphasis is on the purchase of capital equipment to replace rolling stock in the region, and to meet minimal transit needs. The median age of the region's bus fleet is approximately 17.5 years old. The region's Transportation Improvement Program (TIP) is the 1976-1978 program of transportation projects recommended for

implementation by the PSCOG, at a total cost of $24.2 million. UMTA Section 5 project requests are shown in Table 40.

UMTA Section 3 grants to Metro for fiscal year 1976 represent over $90 million in approved or pending capital investment.

Since 1971 the region has received approximately $50 million in Section 3 Capital Grants. The Technical Study Grant to the PSCOG (WA-09-0003) in 1971 resulted in the development of a TDP (1972) which has guided regional transit investment since then. The products of this grant included:

> The successful referendum for the creation of Metro in 1972.
>
> The 1973 UMTA Capital Grant (WA-03-0014), which enabled Metro to purchase the assets of the Metropolitan Transit Company, become the transit operator in King County, and upgrade the existing fleet.
>
> 1972 UMTA Capital Grants to the Cities of Tacoma (WA-03-0012), Seattle (WA-03-0013), Everett (WA-03-0010), and Bremerton for fleet upgrading, park-and-ride express lots, bus stop shelters, and garage facilities.

Subsequent UMTA Technical Studies Grants to PSCOG have resulted in the UMTA Capital Grants WA-03-0014 in 1973 and WA-03-0016 in 1974 to Metro for the purchase of private operators assets, purchase of 600 new buses and trolley coaches, and construction of parking lots, shelters, and related equipment.

WA-03-0013 (1972) was used to acquire a park-and-ride lot. It is related to the UMTA Blue Streak demonstration grant now completed. This involved freeway bus operations with special ramps for buses and is now part of the Metro Transit System.

Bids were sought unsuccessfully by Metro in January 1975 for 600 buses in WA-03-0016 (1974). European manufacturers did not bid because they expected a large downpayment on order and progress payments, which nearly pay for the buses by the time they are delivered. U.S. firms apparently refused to bid because of Seattle's unusual specifications.

Pending Capital and Operating Grant applications include the remainder of the grant to Metro (WA-03-0016) for the purchase of buses, extension of electrification, etc., and a grant to the Washington State Highway Commission (WA-03-0017) for the purchase of two high-speed ferry boats. The total of UMTA Capital Grant applications pending to the Seattle-Tacoma-Everett area amounts to approximately $58,770,000. There are available to the region $8,300,000 of unusued Section 5 formula grant funds from fiscal years 1975 and 1976. In addition, there are urban system fund transit-related grant requests in process. Both the unused Section 5 monies and urban system fund requests are being considered in conjunction with transit integration with the I-90 expressway.

The size of the bus and ferry systems had not increased since receipt of the UMTA Capital Grants; however, the condition of the fleet outside of Seattle has improved substantially. This is consistent with an urban transit emphasis in cities of the region, a PSCOG preference.

Metro has not purchased new buses thus far because of bus specification problems. There are currently 742 buses in the combined fleets of the region (including Bremerton Municipal Transit, which is outside the urbanized area). Of these, 68 are less than 5 years old, 126 are 5 to 10 years old, 128 are 10 to 15 years old, 420 are more than 15 years old, and 53 more than 25 years old. Annual revenue patronage in 1974 on the combined fleets totalled $43,846,000, an increase of 11 percent from 1973. This growth was in response to the fuel shortage, new equipment, and additional service.

New or Improved Services With Existing Facilities

The PSCOG has studied various innovative transit methods, which have been adopted by local municipalities and operators. These include contra-flow bus lanes; preferential treatment for buses; express transit and exclusive bus lanes; staggered work hours; a four-day week; and Metro's Magic Carpet, a free-fare zone in the CBD.

The Seattle/Metro Magic Carpet zone, an UMTA demonstration project introduced in 1973, has been a very effective new service. Riders on inbound trips do not pay fares within this zone. On outbound trips, a "pay leave" system is used in which riders do not pay until after passing the zone. Stimulating travel within the CBD at no added cost to the system, Magic Carpet has made possible terminating a 10-cent downtown shuttle bus service. WA-09-0012 (1975) was an UMTA-funded evaluation of the Magic Carpet service.

There are TSM planning activities in fiscal year 1976 IGA program, including the following recommendations:

1. An analysis of low capital intensive, short-range improvements, an UMTA-supported item within a Transportations Systems Plan Formulation and Refinement task.

2. A CSP-sponsored element for energy conservation and transit efficiency planning by Metro.

3. A CSP-sponsored study by the City of Seattle of transit delay reduction.

These tasks were part of PSCOG's effort to develop and implement a TSM element, which was completed in March 1976. Limited progress was made on these tasks because the staff was transferred to work on the I-90, Phase II, withdrawal and substitution study. However, the analysis of a low capital alternative for the I-90 study involved the application of TSM principles to a major travel corridor, providing background for a regional TSM element.

Various CSP supported planning activities are in various stages of completion, and are consistent with TSM emphasis. These include studies by the Cities of Seattle and Tacoma on transit delay reduction and dynamic transit routing methods and feasibility, a study by the City of Renton on congestion relief, and a study of operational delays on arterials by the City of Seattle.

Almost half of the FY76 planning grant is directed toward developing TSM activities. Previous UMTA planning grants have also included substantial amounts of work devoted to short-range planning to improve existing resources. In addition, much of Metro's planning activities involve TSM but are not included in the Unified Work Program, either because they have a different funding source or are not coordinated between Metro and PSCOG.

## Institutional Climate

The MPO designation of the PSCOG is in question because of the withdrawal of three county governments representing 54.5 percent of the regional population. Currently, the matter is under negotiation to determine the reasons the counties withdrew and to reconcile the problems causing the withdrawals. The FHWA field office has required the PSCOG to achieve "appropriate representation" or FHWA will cut off all planning and capital assistance to the counties that have withdrawn. This will affect primarily the unincorporated areas of these three counties where the

regional issue of development versus open space/agriculture has been centered. FHWA will cut off all planning and capital assistance to the PSCOG if representation is not satisfactory. Full decertification may follow.

The counties that withdrew are considering various alternatives to the PSCOG, including separate planning agencies for each county with separate MPO designations. The PSCOG would be replaced by a new regional organization with a smaller staff and reduced activities.

The PSCOG believes it can function effectively without the three counties, since the incorporated areas have continued their membership and they contain the larger share of the region's population. Without King County, however, the PSCOG cannot meet HUD's Areawide Planning Organization (APO) requirements that 75 percent of the population be represented. HUD funding is expected at the end of next year. Without HUD Areawide Planning monies, more UMTA monies would be directed to land use development planning activities.

A more immediate financial impact of the county withdrawals will be to directly affect the funding base of the PSCOG. Local governments, whose membership in the PSCOG is voluntary, have supported the PSCOG at varying levels since its inception. The total amount of local share funds to be contributed and the specific amount contributed by each member government is determined by the PSCOG council. The contribution is established by a formula based on population and assessed valuation. The average assessment is 16¢ per capita.

In 1975, the assessed amount for member governments was $405,000. Because of the withdrawals of Pierre, Snohomish, and King Counties, the 1976 figure will be $272,500, a reduction of over 30 percent. The PSCOG believes that Federal and Sate governments must make up the difference if a regional planning program that meets minimum requirements is to be maintained.

Trident

Another problem area for the PSCOG has been its attempts to work with the Department of the Navy in the development of a major naval base for the Trident Nuclear Weapons System in Kitsap County. The Navy has prepared a massive environmental impact statement supporting the development of the base. Kitsap County requested that the PSCOG assist in evaluating traffic and land use forecasts and impacts. The PSCOG is developing a subregional transportation plan and a program of short and long-term

improvements for Kitsap County. However, PSCOG is unsure how much impact these studies will have on the Navy's final decisions.

PSCOG and Metro

Both PSCOG and Metro have staffed, competent professional planning departments. In addition, King County and Seattle have transportation staffs. Tacoma, Everett, Bremerton, and Kitsap County want their own planning staffs.

Conclusions

UMTA Technical Studies Grants to the Seattle region have played a critical role in the evaluation of improved transit services. These transit service improvements are the result of the continuing development of a proficient multi-modal transportation planning process, with transit planning as an integrated element.

The recommendations of a technical study, supported by a Technical Study Grant, was significant in the creation of Metro, the transit operator in Seattle. Public support of transit is illustrated by the 1972 approval of the referendum to create Metro and provide a 0.3 percent sales tax to support transit operations and planning.

Since 1972, Technical Studies Grants to PSCOG and Metro have continued to support transit planning in the region. The current emphasis on integrating transit elements in a local interstate highway connecting link (I-90) exemplifies the continuing concern for multi-modal transportation planning in the region.

See the summary matrix, Table 41.

TABLE 39. SEATTLE - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| WA-09-0001 | City of Seattle | | 1967 |
| WA-09-0003 | City of Seattle | | 1970 |
| WA-09-0005 | PSGC | $447,000 | FY73 |
| WA-09-0006 | PSCG | 519,000 | FY73 |
| WA-09-0008 | PSCOG | 239,000 | FY74 |
| WA-09-0010 | PSCOG | 622,000 | FY75 |
| WA-09-0012 | Metro | 75,455 | FY75 |
| WA-09-0013 | PSCOG | 458,000 | FY76 |

TABLE 40. SEATTLE - UMTA SECTION 9 PROJECT REQUESTS

| | PROJECT REQUEST (Millions of Dollars) | | | |
|---|---|---|---|---|
| OPERATOR | 1976 | 1977 | 1978 | TOTAL |
| Metro | 6.3 | 5.1 | 6.1 | 17.5 |
| Everett | 0.2 | 0.2 | 0.2 | 0.6 |
| Snohomish County | 0.2 | 0.4 | 0.5 | 1.1 |
| Tacoma | 1.1 | 1.5 | 2.4 | 5.0 |
| TOTAL | 7.8 | 7.2 | 9.2 | 24.2 |

# TABLE 41. SEATTLE - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region X

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 8 | 2.38M | 1967 |
| Capital, Section 3 | 7 | 90M | 1971 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | | x | x | Limited use of consultants. |
| Operational | x | x | | | | x | |
| Long Range | x | x | | x | x | | |
| Modelling | x | x | | x | | x | |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | | | | x | Large bus purchase in 1974 for replacements; purchase of 600 additional vehicles pending. |
| Garage/Maintenance | x | x | 3-5 | x | x | x | |
| Operational/Other | x | x | | x | x | x | |
| Park and Ride | x | x | | x | | x | |
| **Service Improvements** | | | | | | | |
| Special Services | x | x | | | x | x | Free fare CBD circulator - "Magic Carpet". |
| Handicapped & Elderly | x | x | | x | x | x | |
| Demand Responsive | | | | | | | |
| Management | x | x | | x | x | x | |
| Marketing | x | x | | x | | x | |
| Other | x | | | x | x | | Transit delay reduction procedure proposed. |
| Route Coverage | x | x | | x | x | x | |
| Route Scheduling | x | x | | x | x | x | |

## 5.19 SYRACUSE, NEW YORK

### Demographic/Socio-Economic Background

The Syracuse SMSA is midway between Albany and Buffalo, at the crossroads of the New York State Thruway, Interstate 81, and the New York State Barge Canal. Together with 20 towns and 15 villages, the Syracuse SMSA constitutes 802 square miles whose boundary approximates Onondaga County. (Onondaga County and the "study area" are used interchangeably throughout the case study.)

The area is noted for its harsh winter climate, with an annual snowfall of 100 inches. It is characterized by a series of urban centers surrounded by large areas of farmland, forest, and undeveloped land.

The 1970 population was roughly 1/2 million, an increase of 45 percent since 1950. Although county density is 596 people per square mile, approximately 80 percent of the population resides within the Syracuse urbanized area, which has a density of 3,910 people per square mile.

The city of Syracuse, with a population of nearly 200,000, has lost 9 percent of its population since 1950. It has a declining CBD and contains most of the county's poor, minority, and elderly. Although it remains a major wholesale and retail center, major industry tends to be situated outside the city, primarily along its northern rim. Major industrial facilities include such nationally recognized firms as General Motors, General Electric, and the Schlitz Brewing Company, with a large new beer facility.

### Transportation Characteristics

#### Trip Characteristics

Trips focus around three major activity centers: the Syracuse CBD, suburban shopping centers, and employment centers in the north and northeast sectors of Syracuse. The work trip modal split decreased from 17 percent in 1960 to 10 percent in 1970. In part, this may be attributed to a well developed and maintained highway system whose traffic volumes rarely exceed capacity. Travel speeds average over 20 mph, and autos experience little congestion except for weather-related delays associated with the cold winters in Syracuse.

Historically, transit has served the transit-dependent population in the Syracuse central city. A 1971 bus survey

indicated that almost 46 percent of all transit users are from carless households, 81 percent did not have a car available for their transit trip, and 19 percent were either under the ages of 15 or 65 years of age and older. Nearly 90 percent of transit trips began or ended at home, with the average trip taking 1/2 hour door to door. Trip purposes were found to be distributed as follows: 55 percent for the work trip, 18 percent for school, 13 percent for personal business, and 14 percent for shopping and recreation.

## Transit History

Since the end of World War II, transit service in the Onondaga County study area has been characterized by cutbacks in route miles, reduced headways, and continuing decline in revenue passengers. Bus miles decreased from 60 million in 1946 to 9-1/2 million in 1971. Likewise, from a daily ridership of 144,000 in 1950, ridership dropped to 53,000 in 1960 and a low of 40,000 in 1972. Heavy patronage losses were most evident between 1967 and 1971. STC, the major urban carrier, experienced a 30 percent decrease in ridership during this time period. Similarly, Syracuse and Eastern Transit Corporation reported a 40 percent drop in revenue passengers.

Transit service witnessed a renaissance of sorts since the creation of a Regional Transit Authority (RTA) in 1970. Created shortly after the passage of the Regional Transportation Authority Act by the New York State Legislature, RTA assumed ownership of STC in 1972 and renamed it CNY Centro, one of its three operating subsidiaries. Subsequently, RTA acquired SETC in February 1974 and consolidated its service with Centro's. Since RTA's creation in 1970, ridership has risen annually, with an overall increase of 10 percent in revenue passengers between 1971 and 1976.

Presently, transit service is offered by CNY Centro, Inc., and three privately owned companies. Centro is the dominant carrier providing 95 percent of all regularly scheduled service. Service is provided 7 days a week on 50 routes which converge in the Syracuse CBD. Peak hour headways are 10 to 20 minutes and offpeak and weekend headways range from 15 to 60 minutes. Specialized door-to-door service (CALL-A-BUS) is also offered for elderly and handicapped patrons with a fleet of four new Mercedes Benz buses equipped with wheelchair lifts. While fare for regularly scheduled routes is 35¢ with a 10¢ zone charge, fare for the specialized service ranges from 50¢ to $1 depending on the length of the trip.

Three smaller companies also provide limited fixed route service within the Syracuse urbanized area: S & O Motor Lines, Onondaga Coach, and CNY Coach. Of these, only S & O Motor Lines provides significant urban service and is headquartered in Syracuse. Generally, the three private companies serve suburban patrons and provide extensive charter and intercity service. The bus miles, revenue passengers, and fleet size of all bus companies in the area may be seen in Table 42.

## Transportation Planning Process

### History

The Syracuse Metropolitan Transportation Study (SMTS) began in 1965, a cooperative effort of local, state, and federal agencies. Its impetus was the passage of the Federal Aid Highway Act of 1962, which required a "3C" transportation planning process in urbanized areas to maintain eligibility for federal funds. SMTS was charged to develop a comprehensive long-range plan and community goals for transportation facilities and services.

Sponsored by the New York State Department of Transportation since its inception, SMTS developed the area's first coordinated comprehensive transportation plan. Since SMTS was a committee structure superimposed upon existing planning agencies, and without an independent staff, the Planning and Research Bureau of NYSDOT acted as the technical staff to SMTS. Under SMTS direction, the interdisciplinary NYSDOT staff completed a comprehensive transportation plan, adopted in August 1972. The plan estimated Syracuse urbanized area travel demand through 1995 and recommended highway and transit improvements that would support urban development goals.

Since 1972, SMTS has formally entered into continuing transportation planning including plan refinement, implementation, monitoring, and review. While monitoring has resulted in updated land use, employment and population forecasts, refinement studies include bus transit corridor needs, and feasibility studies for new capital acquisitions.

### Goals

The area's transportation planning goals were formulated within the context of comprehensive planning and emphasize expanded transit service to developed and developing areas. Expressed goals call for developing a transportation system to provide mobility for all population segments, and an aesthetically, environmentally, and

economically sound system. Specific goals are stated for highway and transit modes, but the plan represented a relatively small committment to transit when compared to highway goals for the area. During the last two years, however, concern for transit has grown, and consequently the area's transportation goals are being re-formulated.

Agencies

Transportation planning is currently the responsibility of four public agencies: The Syracuse Metropolitan Study (SMTS), the New York State Department of Transportation (NYSDOT), the Central New York Regional Planning and Development Board (RPDB) and the Central New York Regional Transit Authority (RTA). Of these agencies, SMTS is the designated Metropolitan Planning Organization (MPO) and maintains lead responsibility for development and updating of the transit plan.

The SMTS structure includes a policy and planning committee and various formal and ad hoc planning subcommittees. The policy committee, which consists of various elected and appointed officials, meets at least three times a year and is responsible for the general direction of the study. The planning committee consists of the administrative heads of public and private transportation planning agencies and oversees the technical conduct of the study. Subcommittees, which include a capital projects and transit and program coordination subcommittee, review and make recommendations to the planning committee. Additionally, there is a nonvoting membership category to facilitate participation by agencies which are indirectly related to providing transportation services.

Since May 1974 SMTS planning activity has been carried out by its staff - the Metropolitan Transportation Planning Team (MTPT). MTPT is an intermodal staff consisting of a supervisor, three professionals, and necessary part-time support personnel as needed. Although it is housed by the Syracuse Onondaga County Planning Agency (SOCPA), it is essentially independent; its personnel are funded by SMTS on a yearly contractual basis. MTPT develops study priorities for plan refinement, capital programming, corridor and sub-area studies, and prepares the annual Unified Work Program, quarterly progress reports, and the transportation planning Prospectus.

Since the creation of MTPT (1974) and RTA (1970), NYSDOT and RPDB have remained active, but in somewhat altered roles in the study process. Presently NYSDOT has the lead responsibility for systems level planning and the

administration and coordination of UMTA and FHWA grant applications. RTA and RPDB, on the other hand, have major responsibility for detailed operational planning and regional plan development and review, respectively. Although the RPDB conducts transportation studies, they act mainly in the role of review because of their status as the designated A-95 agency.

### Technical Studies Grants

To date, the area has received four Section 9 Technical Studies Grants totalling $759,154 and provided 20 percent of this as a local share. The recipient, date of award, amount, and duration of each grant awarded is shown in Table 43.

In general, actual use of the grants has been short-range planning in a one county (Onondaga) area. The first grant was awarded directly to RTA, which used the money for consultants who developed "Transit Improvement Study" for CNY Centro, Inc., providing the first operational and subregional planning. Three subsequent Technical Studies Grants were awarded to NYSDOT, which disbursed most of the money for MTPT planning activities and smaller amounts to RTA and RPDB. These three grants revised the area's first TDP and supported other work items identified in the Unified Work Program. Major studies funded thus far include: corridor studies, a garage feasibility study, and special service studies for park-and-ride and subscription bus service.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

Prior to 1974 there was a lack of professional transportation personnel in the Onondaga County study area. SMTS did not have a local centralized staff and only one staff member among the two comprehensive planning agencies was assigned full-time to transportation planning. Until May 1974 transportation planning was provided by NYSDOT personnel who acted as SMTS staff arm. Since the infusion of planning grant money in 1971, main areas of improvement in professional planning capability include:

Use of consultants
Creation of a local centralized staff
Subregional and short-range planning
Emphasis on staged implementation
Increased coordination/use of planning expertise

Increased professional planning capability was evidenced with the consultant's development of a transit improvement study for CNY Centro, Inc. This study provided an inventory and analysis of equipment needs, service standards, and management organization and efficiency. It represents the area's first comprehensive operational planning analysis with concrete recommendations for route realignment, scheduling changes, and service expansion. Addionally, the transit improvement study developed a capital program with staged implementation plans and fiscal and funding analysis to achieve the recommendations. Together with a capital program endorsed by SMTS, the transit improvement study became the first Transit Development Program (TDP) for the area.

The creation of MTPT in May 1974 met the area's need for a local staff capable of subregional and operational planning. Reflecting the increased subregional planning capability provided by MTPT was the initiation of five corridor studies for the major growth areas in Onondaga County. These studies have evaluated existing routes and recommended service modifications of the previous TDP plans. An important by-product has been the recommendation of operational changes such as the introduction of a new east-west bus route to increase lateral mobility and facilitate interline transfers. A noteworthy example of increased effectiveness was a recent MTPT recommendation for a line change that was more efficient; it saved Centro, Inc., $50,000 while making the route more responsive to local needs.

MTPT has effectively reversed the emphasis on long-range planning. Short-range planning, in a 5-year horizon, is now witnessed on a continuing basis with the preparation of an annual Transit Improvement Program. Major components of this plan include recommendations for park-and-ride service, subscription bus, demand-responsive service, and corridor studies. The plan improved fiscal analysis by devising a methodology for fund distribution and a strategy for funding of capital needs.

Increased coordination of available personnel has also been witnessed by the use of multiple staff arrangements. MTPT and RPDB, for instance, have recently entered into agreement to conduct a study of the transit needs of portions of outlying county areas that are not yet urbanized. Likewise, MTPT staff in the past have been housed by RTA and produced plans of direct relevance to the operational needs of RTA. Similarly, MTPT has also aided Syracuse and Oswego Motor Lines in the initial preparation of requests for Section 3 Capital and Section 5 Operating Grants.

Local staff capability has improved through use of professional planners and students from Syracuse University. Students have provided data to MTPT through class-sponsored transportation projects. As the need arises, planners/students are also hired on a part-time basis to conduct specialized studies under MTPT direction. Syracuse University architectural students are competing to design a proposed Transit Information Center. Cooperation between MTPT and Syracuse University developed the Onondaga County Demographic Study (OCDS), which is expected to increase operational planning efficiency since OCDS provides a good estimation of ridership on potential route structures.

New Capital Acquisitions

Reflecting the serious financial difficulties incurred by private operators from 1967-1971, neither fleet replacement nor purchase of needed tools and shop equipment were made. For the STC, since bought out by the RTA, 100 of their buses were over 15 years old - or 4 years behind full depreciation value. The lack of spare parts for their engines, plus the fact that most were gasoline rather than diesel engines, added hardship to the company's operations. Similarly, necessary renovation and construction of garage and administrative facilities were not done.

The need for substantial upgrading of capital equipment and facilities was first identified in the 1973 TDP. Subsequent analysis of capital needs and strategies to obtain this equipment now routinely appear in the annual TIP and more than 20 million dollars of capital improvements are programmed for the next 5 years. Major new capital needs which have been recommended or purchased include:

A "buy out" of three private bus operators
Major facilities construction
Fleet expansion and replacement
Maintenance equipment, bus stops, and shelters

The major capital acquisitions to date have been purchase of the assets and equipment of two private carriers - STC and SETC. These two carriers were picking up and discharging passengers in direct competition with each other and had experienced substantial losses in passenger revenue. RTA has assumed ownership of STC and is in the process of condemnation proceedings for SETC. The recommendation of buying out Syracuse and Oswego Motor Lines, however, has been resisted by the private ownership, and acquisition plans have been abandoned.

New facilities improvement includes construction and renovation of administrative and garage office complexes for

both CNY Centro and S & O Motor Lines. The S & O garage is a particularly inadequate storage facility since it requires four buses to be parked outside. Similarly, Centro's garage and administrative complex is outdated and inefficient due to its scattered physical layout and age. FY76 funds have been set aside for preliminary engineering and design for a garage/office complex for Centro and renovation of S & O's obsolete storage and maintenance facility.

Plans for a downtown passenger shelter and information center, first recommended in the 1973 TDP, have continued. This proposed center would provide shelter for transferring purposes, provide a central location for the dissemination of current transit information, and serve as a focal point for the CBD circulator bus service. Its location will be in a high passenger volume area (Fayette and Saline Streets), near Centro's common route center.

Finally, the construction of a downtown "transit way/mall" was proposed in 1976 to increase the attractiveness of CBD business and travel. The mall requires closing a major downtown street (Saline Street) to all through vehicular traffic. The mall would be a pedestrian way, with only public transit, local, and emergency vehicles allowed to traverse it. UMTA has made available only a limited number of dollars for projects of this type, however, and funding is dependent upon the outcome of competition with other major cities. The total cost of this project is estimated to be $5 million.

RTA and the private carriers have acquired a substantial number of buses for both replacement and expansion purposes. More than 150 buses have been purchased with "Section 3" grants, reducing the median age of buses to 5.8 years - as compared to a median age of approximately 12 years in 1972. In general, these new buses have been of two types: (1) 45-seat capacity to complement line service and (2) 20-25 seaters for a CBD circulator bus system and a dial-a-ride service for the elderly and handicapped. Future acquisitions will allow for continued fleet upgrading, introduction of a park-and-ride service, and expanded subscription bus service.

Other major capital items acquired include supervisory vehicles, tools and shop equipment for maintenance, an automatic farebox system, two-way radios, and bus stop signs and shelters. Bus shelters represent a large investment because of the quantity needed to protect waiting and transferring passengers in the cold climate of Syracuse.

New or Improved Services With Existing Facilities

Prior to the receipt of the area's first Technical Study Grant, there had been little attempt to develop capital or low capital intensive strategies to increase facilities utilization. Although private operators were cognizant of the rapid decline in revenue passengers, neither the professional transportation capability nor the equipment were available to make adjustments. Serious deficiencies existed in management efficiency, route and schedule structures, and operational equipment and farebox systems. Additionally, there was little planning for specialized services, such as park-and-ride, and a lack of public information or marketing attempts to increase ridership.

With receipt of Technical Study Grant money, all of the above deficiencies have been substantially remedied. Major areas of improvement include:

- Increased management efficiency
- Acquisition of operational equipment for increased management information
- Route and schedule modifications
- Improved public information
- Marketing schemes to improve ridership

Increased facility utilization occurred as a direct result of the management reorganization (CENTRO) plan outlined in the first TDP. This reorganization plan, since implemented, established a new sales and service department, combined research, planning and scheduling functions into one department, and created a preventive maintenance record system. Additionally, reorganization increased planning efficiency by eliminating a topheavy management structure, manpower reductions, and reorganized work assignments. Major benefits include:

- Development of promotional activities to improve ridership
- Preparation of route maps
- Breakdown of cost data to support management decision making
- Scheduling to utilize staff efficiently and avoid driver overtime, and deadhead time.

Currently, a scope of work to fund a management study is proposed on the availability of Centro's management information tools and will evaluate the existing information system, determine new information needs, and provide a cost-effective means of obtaining the needed information. This study will analyze accounting, payroll, operation and statistical procedures, collection and analysis, etc. Based

on this analysis, a plan and process will be established for an internal ongoing evaluation upon implementation of the recommendations.

Hardware has been identified and acquired to increase the operational efficiency. In the past four years, the SIMS, FARE, RUCUS, and ARCOM systems sponsored by UMTA have been adapted to Centro's operation. S & O's management has also allocated funds for the development of a farebox system and a sophisticated computer management system with automated accounting, payroll, and general statistical information storage.

Operational changes directly affecting passengers have been most evident in route and schedule changes. Although there has been little change in the number of routes, 40 route consolidations, eliminations, or extensions have taken place. Route changes have occurred by creating a CBD circulator system and providing free rides on deadhead buses returning to the Syracuse CBD. Efforts have been made to keep headways consistent on all routes during all hours of operation; time intervals between buses, when possible, have been changed to be divisible by 15 or 30 minutes.

Increased fleet utilization occurred during the energy crisis when 10 percent of the Centro fleet, normally reserved for preventive maintenance, was pressed into service for subscription bus service. Although some of these routes have since been dropped, 3 remain in existence and subsequent planning has identified and contacted 20 major industries in the Syracuse urbanized area for possible additional routes. Similarly, seven potential park-and-ride locations will be implemented in FY77. Important in planning for park-and-ride is the effort to use these buses during offpeak hours in the CBD circulator system, shopping shuttles, and elderly transportation.

Special planning for elderly and handicapped service was first noted in the 1973 TDP and has subsequently been implemented in the form of a dial-a-ride service. Special service vehicles equipped with wheelchair lifts have been acquired and operated under the USDOT Service and Methods Demonstration program. Increased bus utilization by the elderly and handicapped is also expected upon the completion of a special study of the origins and destinations of these two user groups.

Finally, extensive public information and marketing plans have been implemented by CNY Centro. Bus stops, formerly identified by a stencilled telephone pole, are now clearly visible along all major and minor routes. Numerous bus shelters have also been constructed and contain, for the first time, route and schedule information. Major marketing

schemes have been implemented and have won national recognition for Centro and increased ridership. Promotional schemes have included the provision of newspapers on the bus, reduced fares during offpeak hours, free rides for downtown shoppers, and free bus service during the Christmas season.

Both capital and low capital intensive strategies have been introduced to increase facility utilization and increase ridership. Since the introduction of these changes, ridership has stabilized and even increased as Centro, the major urban carrier, increased ridership 10 percent and S & O Motor Lines witnessed a stabilization of ridership during the last 5 years.

## Institutional Climate

Since the creation of the SMTS in 1965, substantial gains have been made in the areas of professional transportation capability, capital acquisitions, and strategies for facility utilization.

Citizen participation deficiencies in the planning process have been addressed by a study funded through the Technical Study Grant program. As a result, there was increased media coverage of transit issues, an expanded mailing list to community representatives, and continuing plans to include the citizenry in capital programming decisions. A series of public forums in different geographic areas of the county were introduced to "bring the issues" to the public for discussion.

Although planning has been stymied because of agency misunderstandings, many of these problems are locally recognized. A recently drafted transportation planning Prospectus had identified these problem areas and sought a new agreement of understanding. The Prospectus outlines the role and authority of each participating agency by the elements of the unified work program.

## Conclusions

Syracuse documents how a community was able to upgrade a failing private transit system in a relatively short time span. Since the infusion of planning grant money in 1971, the trend of poor equipment, old buses, and route cutbacks has been arrested. Significant gains have also been realized in the areas of management efficiency, marketing, and the introduction of specialized services. Without diminishing the role of the RTA in effecting these improvements, much of the success in planning may be traced

to the community's creation of a local central planning staff. Since its creation in May 1974, the local staff has made planning more attuned to local needs and desires and has served as a necessary broker between private and public operators in the highly politicized planning process.

See the summary matix, Table 44.

TABLE 42. SYRACUSE - EXISTING TRANSIT SERVICE

| TRANSIT OPERATOR | BUS FLEET | ANNUAL RIDERSHIP (THOUSANDS) | ANNUAL VEHICLE MILES (THOUSANDS) |
|---|---|---|---|
| CNY Centro, Inc. | 155 | 10,500 | 4,500 |
| S&O Motor Lines | 28 | 400 | 1,100 |
| CNY Coach | 21 | 179 | 300 |
| Onondaga Coach | 9 | 307 | 500 |

TABLE 43. SYRACUSE - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| NY-09-0011 | RTA | $188,000 | 1971 |
| NY-09-0019 | NYSDOT | 184,000 | 1973 |
| NY-09-0024 | NYSDOT | 335,200 | 1974 |

# TABLE 44. SYRACUSE - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region 1

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 3 | 707K | 1971 |
| Capital, Section 3 | 3 | 17.4M | 1971 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | x | x | x | Planning done by MPO except for TDP in 1973. |
| Operational | x | x | | x | x | x | Main responsibility of RTA planning staff. |
| Long Range | | | | | | | Done by New York State DOT; major study complete in 1971. |
| Modelling | x | | | x | x | | Effort to develop a ridership estimation model. |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | x | 5 | x | x | x | Over 150 buses for replacement and expansion of service. |
| Garage/Maintenance | x | | | | x | | Feasibility study for 2 garage facilities is underway. |
| Operational/Other | x | x | 5 | x | x | x | Information ctr; signs, shelters, ARCOM, RUCUS |
| Park and Ride | x | | 5 | x | | | First phase implementation scheduled for FY 76. |
| **Service Improvements** | | | | | | | |
| Special Services | x | | 5 | x | | | Subscription bus and downtown circulator system planned. |
| Handicapped & Elderly | x | x | | x | x | x | Service and Methods Demonstration Grant received. |
| Demand Responsive | x | x | | x | x | x | Elderly and Handicapped service. |
| Management | x | x | | | x | | TDP recommendations; new MIS study planned. |
| Marketing | x | x | | | x | x | Main responsibility of RTA staff; Section 5 funding. |
| Other | x | x | | x | | | Citizen participation study. |
| Route Coverage | x | x | | x | x | x | Route revisions; corridor studies; E-W mobility improved. |
| Route Scheduling | x | x | | | x | x | Time intervals changed to keep headways consistent. |

## 5.20 WORCESTER, MASSACHUSETTS

### Demographic/Socio-Economic Background

Located 38 miles west of Boston, Worcester is the second largest city in the Commonwealth. It is also in close proximity to the Providence, Rhode Island, metropolitan area.

It is the center of a region with a population of roughly 243,000 in 80 square miles. The towns composing this region are suburban or rural, with populations ranging from 700 to 22,000 and densities generally less than 500 people per square mile.

The city of Worcester is distinctively urban, with a 1970 population of 176,000 and a density of 4,791 people per square mile. Worcester contains major retail, medical, employment, and educational opportunities.

The region's diversified economic base features manufacturing of aviation pressure suits, looms, electronic devices, steel and wire goods, and textile and paper products. Approximately 800 manufacturing firms are within the region and 500 are located in the central city.

In recent years manufacturing and retailing have declined. The deteriorating retail function is especially marked in downtown Worcester, where there are many empty storefronts. The decline has been precipitated by recent population changes which increased the proportion of elderly, handicapped, poor, and minority residents of Worcester, while total population declined 5.4 percent. The service sectors are expanding with recent gains in the insurance, real estate, and financial/administrative markets.

### Transportation Characteristics

#### Trip Characteristics

Trips within and through the Worcester region are facilitated by two major limited-access highways: Interstate 290, which runs N-S through center city Worcester, and Interstate 90, the Massachusetts Turnpike, which traverses the southern trip of Worcester and provides E-W access across the entire state. Together with Route 9, a major E-W arterial, these routes provide excellent access to not only Worcester, but also the employment, shopping, and cultural activities in the Boston Metropolitan area.

According to the 1970 census, Worcester area trips are generally self-contained, with little travel into the Boston area. Fewer than 800 area residents work in Boston, and other Boston-oriented travel, except to Logan International Airport, is not significant. Most trips center around the city of Worcester; the nine contiguous communities have at least 45 percent of their work force employed in the city. Shopping trips are oriented to the suburban areas.

The Worcester region is an auto-dependent area because there is little congestion, even at peak hours, and there are no parking problems downtown. Suburban transit usage is minimal and the 1970 work-trip modal split was under 3 percent. Approximately 12 percent of Worcester inner-city residents relied on transit for their work trip in 1970. Also, 26 percent of Worcester city households had no automobile available in 1970.

## Transit History

From 1893 to 1946 public transportation was provided by the Worcester Street Railway Company's (WSRC) electric trolleys. In 1946 the trolley system was replaced by buses, which were operated by WSRC until 1952 when they were bought out by the Worcester Bus Company (WBC) for $485,000. Although ridership on the bus system reached 38 million in 1948, it declined to 22.1 million in 1952 and to 5.5 million in 1973. Ridership decreases continue, although the rate has slowed to 2 to 3 percent a year.

Because of declining ridership and increasing labor and capital costs, the WBC threatened to cease operation in 1973 unless it received increased financial assistance from the city of Worcester. This crisis was precipitated by a labor dispute in which union workers demanded a wage scale that WBC could not meet profitably. After a 7-day strike, an agreement was reached. This settlement was due in part to the Massachusetts State Legislature's passage of a bill to allow Worcester and other cities to subsidize failing transit systems.

City assistance took the form of new capital equipment purchased using UMTA's emergency Capital Improvement Grant Program. The city purchased 34 new buses and leased them to WBC with a supervisory agreement. Subsequently, Worcester and surrounding towns have provided direct subsidy to WBC's operations through a Regional Transit Authority (RTA) created in September 1974. RTA provides state reimbursement on a 50/50 basis for operating deficits. Under law, however, the RTA does not provide direct transit service to member communities but uses individual service contracts.

Under contract to RTA, the Worcester Bus Company is the local principal carrier for the Worcester area. Although its franchise rights include Worcester and 16 suburban towns, service is provided only to Worcester and 13 member RTA communities. WBC provides service with a fleet of 160 buses, which includes 34 city-owned vehicles, 5 mini-coaches, and 6 school buses. Service is provided on 41 routes, all of which enter and depart through the Worcester CBD. Free transfers are available on all routes. Twenty-seven routes provide continuous service with headways that average 31 minutes in peak hours and 37 minutes in offpeak. Fare level on regularly scheduled routes vary from 40¢ for city fare, 60¢ to $1.05 for zone, and 35¢ for senior citizens.

School charter service is rendered to 76 public and private schools serving 13,000 students a day. Students purchase 10 tickets for $2.00.

There are 6 privately owned suburban companies, van service by 12 social service agencies, 4 taxi companies in Worcester, and 12 taxi companies in suburban towns. Most of the bus operators are small singly-owned corporations employing part-time drivers. Line haul service is minimal and provided to allow the operators to keep their ICC licenses. Emphasis is on charter and intercity travel, including several express routes into Boston via Route 9 and the Massachusetts Turnpike. Service by the social service agencies (8 vans and 4 autos) and taxis is primarily aimed at the delivery of foods, and transportation to volunteer programs, medical appointments, and shopping centers.

## Transportation Planning Process

### History

Historically, transportation planning in the Worcester area has been done by individual communities on an ad hoc basis, with heavy emphasis on highway planning and scant attention to transit needs; rarely did studies transcend jurisdictional boundaries.

The first multi-jurisdictional planning study was the "Central Corridor Study" undertaken in 1965. At about the same time (1964-1965), the Worcester Urban Area Transportation Study (WUATS) was carried out by De Leuw Cather and Company. The WUATS study was a multi-jurisdictional effort for Worcester and 11 surrounding towns. When completed in 1969, it represented the area's first comprehensive analysis of existing conditions, long-range forecasts of future travel, and recommendations for

plan implementation. However, WUATS paid only superficial attention to transit issues and needs.

Since WUATS, local transportation planning capability has been maintained in the Office of Planning and Community Development (OPCD) of the City Manager's Office in Worcester and the Central Massachusetts Regional Planning Commission (CMRPC). Major responsibility for transportation planning was transferred from OPCD to CMRPC in 1973. This transfer was due to the wider geographic scope of CMRPC and to insure that transportation planning was part of areawide comprehensive planning for which CMRPC also had jurisdiction. Presently, CMRPC planning is being funded by UMTA and FHWA, the latter funds of which are passed through the Massachusetts Department of Public Works.

## Goals

Planners indicate that a major planning goal is to provide good transit service to the area's transportation disadvantaged, most of whom reside within Worcester. Transportation goals and objectives for the Worcester region were adopted in June 1975 by the Transportation Planning Advisory Group, a citizen-oriented body working with the planning staff of CMRPC. The goals reflect the statewide goal of establishing "a balanced transportation system for the movement of goods and people in all parts of the state." These goals also reflect a special concern for multi-modal and comprehensive planning that would provide a good level of service to captive transit riders.

## Agencies

There are four agencies that have major responsibility for transportation planning in the Worcester planning region: (1) the Central Massachusetts Regional Planning Commission (CMRPC), (2) the Worcester Regional Transit Authority (WRTA), (3) the Massachusetts Department of Public Works (DPW), and (4) the Executive Office of Transportation and Construction (EOTC) of the state of Massachusetts. Under an agreement signed in March 1976, and as directed by the Governor, all four agencies compose a Committee of Signatories (COS), which serves as the Metropolitan Planning Organization for the area. In part, this multi-agency set-up developed from a Memorandum of Understanding between these agencies signed in 1972 in order to initiate the "3-C" planning process in Worcester.

Both CMRPC and WRTA serve as lead planning and implementing agencies, respectively. CMRPC, which consists of one member of the planning board of each city and town

that is a member of the planning district, is also the A-95 agency and provides the local planning staff. This staff is hired and supported by CMRPC with DPW and UMTA funds. In contrast, RTA operates with only one administrator and one secretary/bookkeeper. RTA has no planning staff, since their planning services are provided by CMRPC under a yearly contractual arrangement.

The state DPW, through its Bureau of Transportation Planning and Development (BTPD), has been the lead agency in implementing the "3-C" process in Worcester and other Massachusetts communities. Generally, BTPD is responsible for highway project planning, administers FHWA "PL" funds, and provides technical assistance and an overall policy framework for CMRPC. Both DPW, through BTPD, and EOTC collaborate in developing and evaluating alternative long-range systems planning, regional and corridor studies, and state priority projects. Together with CMRPC these agencies are responsible for adopting a Prospectus, Unified Work Program, and appointing members to the TPAG, the citizen activist group.

In Worcester, as in other Massachusetts planning regions, groups like TPAG were mandated by the state to ensure that there would be an open and participatory transportation planning process in local areas. TPAG was formed in Worcester in 1973, with membership drawn from elected and appointed public officials and others with an interest in transportation. Meeting four times a year, TPAG guides the transportation work program, including review and recommendations on transportation-related plans affecting the district; it also resolves issues and controversies, and recommends project priorities.

Technical Studies Grants

Two Technical Studies Grants have been awarded to the Central Massachusetts Regional Planning Commission totalling $223,125. In 1973, money was passed through to OPCD, which conducted most of the planning funded by the first grant. The first grant, received in June 1973, was awarded on a 2/3 - 1/3 federal/local split. The second grant was awarded on an 80/20 basis, with the local match being provided by CMRPC, OPCD, and the Worcester Bus Company. The recipient, date of award, amount, and duration of each grant may be seen in Table 45.

The first planning grant funded the development of the region's first Transit Development Program (TDP). Although CMRPC received the grant and coordinated the TDP preparation, most of the work was subcontracted to OPCD and consultants from a local engineering college. The grant's

purpose was to complete a TDP so as to qualify the city of Worcester for the receipt of an additional 1/6 of the net project cost of their earlier Section 3 Capital Grant and to make the city eligible for additional capital funds.

The TDP was a cooperative effort between the City Manager's Office and professionals and students from Worcester Poly Tech. It inventoried the existing transit service for all carriers, including analysis of routes, service, equipment, financial conditions, facilities, labor, and management organization. Special population groups were also identified, and a transit usage survey was conducted to determine demographic, trip purpose, and load profile curves.

Cost analysis of the Worcester Bus Company identified revenue-producing and heavily deficit routes and evaluated alternative route structures. Latent demand and the methods of serving it were analyzed, including alternative bus routings, service to employment centers, headways and fare structures, and service to special need groups. Finally, realizing that continued operation of WBC without subsidy was impossible, different management alternatives were evaluated, and it was suggested that a Regional Transportation or Transit Authority be created.

The second grant updated the 1973 TDP, initiated long-range planning, conducted specialized studies, and prepared a transportation sketch plan, a short-range improvement program, and surveillance and reappraisal efforts.

## Transportation Planning and Implementation

### Development of Professional Planning Capabilities

As of August 1973 there was no professional planner at the regional level. CMRPC, which was the recipient agency of the first UMTA grant, hired a transportation consultant to monitor the completion of the TDP by OPCD. Other than a scheduler, there was no planner at the Worcester Bus Company. Similarly, the city of Worcester had one transportation planner who completed the TDP with consultant help from a local college.

Today, as the direct result of transit funding support from UMTA and the Massachusetts DPW, there are four professional transportation planners on the regional level in Worcester, CMRPC. These planners are capable in both highway and transit planning. Although the city of Worcester's OPCD maintains a staff of two transportation planners, they no longer are funded by UMTA, since they administer the HUD Block Grant Program. Close contact is

maintained with local colleges whose services are used on an "as needed" basis. Students carry out continuing "load profile" studies for the WRTA in order to determine deficits on a route-by-route basis.

Presently, CMRPC planning activity emphasizes operational planning for WBC as the agent of WRTA (under contract) in this area. CMRPC has daily contact with WRTA and WBC about route changes and short and long-term policy recommendations. Onboard surveys are conducted quarterly on routes which have been modified and new routes, and spot checks are made on previously existing routes so that transit ridership and load profile can be determined and compared with the results of the 1973 survey used in the TDP. Operational technical advice is also provided to nonprofit carriers in the area operating under the 16-B-2 program.

Short-range plans with specific proposals geared to the needs of the operator are also prepared by CMRPC staff. Current activity centers around the completion of the area's first 5-year Transit Improvement Program and a Transportation System Management Element. When completed they will serve as the blueprint of short-range transit improvements and will be updated on an annual basis.

A series of mini-TDP's will also be initiated in FY77 in suburban towns presently without transit service to analyze origin-destination data and estimate the demand and potential cost of providing transit service in non-WRTA communities. They will be completed during the next four years.

Long-range planning is also conducted by CMRPC, although it is not a priority item and uses a small proportion of the planning program. Funded by both UMTA and the Massachusetts DPW, long-range planning activity is conducted mainly to meet FHWA planning requirements. This part of the planning program is aimed at updating the earlier WUATS study (1969), since long-range activity has been dormant. A multi-modal transportation sketch plan is being updated to complete a long-range comprehensive Transportation Plan by 1980. Staff are also tabulating socio-economic data to "Basic Analysis Zones" to develop trip generation statistics for planning projection models and highway needs for priority programs. A computerized regional transportation assignment network for future model development is being developed.

Surveillance activities including monitoring and updating are ongoing as part of the continuing evolution of transportation planning. Planning is aimed at monitoring land development and travel patterns and maintaining current

social and economic data. An update of the transportation facilities in the region, exclusive of bus service, but including air and rail, is also planned. There is also activity to continue to determine the effect of the transportation plan on air quality levels in the region. There is superficial integration of comprehensive planning, specifically land use and transportation by local admission.

UMTA funds support CMRPC's role as the technical advisor on transportation matters for other agencies or individual communities. CMRPC keeps towns informed of the latest state and federal transportation programs and supplies information to local citizens, selectmen, planning boards, and private firms. UMTA planning funds also support the attending of seminars, workshops and conferences by CMRPC staff to further their planning capabilities.

New Capital Acquisitions

Capital facilities in Worcester can best be described as either old, inadequate, or nonexistent. The average age of the bus fleet is 15 years, the garage facility is too small, and many buses remain outside at night, necessitating that during the winter months buses be run all night or be used. Bus stop signs are missing outside of Worcester. Within Worcester, bus stop signs are confusing because of a local ordinance that they double as "No Parking" signs. Bus destination signs are not accurate, since drivers do not have time manually to crank and adjust both the front and side destination signs. Benches and bus shelters are also in extremely short supply.

Although the above deficiencies were mentioned in the 1973 TDP, the city of Worcester has to date received only their initial UMTA Capital Improvement Grant for the 1971 bus replacement. Buses and other capital equipment continue to deteriorate, resulting in a higher cost of operation due to a greater frequency of mechanical breakdowns. A preliminary Section 3 (Capital Grant) was filed in FY76 to remedy these problems for a five-year capital acquisition program. Action on this grant is pending, however, until there is a legal ruling on the liability of WRTA under UMTA's "13-C" labor protection clause. If this issue is not settled when WRTA receives the Capital Grant, WRTA fears that it would be responsible for millions of dollars in settlement damages should WBC lose its school bus contract and have to lay off 80 workers. It is estimated that the "13-C" controversy will be settled in the next 6 to 12 months.

The preliminary grant will replace WBC's line haul fleet in order to provide a minimum level of reliability and

comfort for passengers. Planned acquisitions include 36 new 45-passenger buses, and 4 new buses for the elderly and handicapped. Three information centers, 26 bus shelters, 800 bus stop signs, and 400 new benches are also planned. Other equipment to be acquired in the next 5 years includes two-way radios, intercom systems, supervisory vehicles, office and maintenance equipment, new destination signs, and a bus washer.

The 13-C controversy is holding up award of a Capital Grant intended to improve the visibility and accessibility of the bus system. Bus stop signs, for instance, will have information on which bus passes through the location, including time and schedule routing for each bus line. To accomodate Worcester's Spanish speaking population, some signs will be written in Spanish and English and signs will be placed in previously neglected suburban residential locations. Shelters will also be placed at housing complexes with greater than 150 dwelling units, in downtown areas, and close to shopping centers, hospitals, and large employment centers. Information centers will be placed in the three heaviest loading points in the CBD, and will include maps of routes and direct telephone service for informational purposes.

Although 70 registering fareboxes were also included in the capital acquisition program, it is noteworthy that they were eventually deleted because of a state-wide requirement that revenues be monitored by route segment in each town. Registering fareboxes, it is claimed, would not discriminate between route segments by community and were therefore deemed inappropriate.

New or Improved Services With Existing Facilities

Recent changes in the bus service level result from the 1973 TDP recommendations. These changes include extensive route realignment and 23 route modifications as suggested in the TDP. Service improvements have provided increased service for the city of Worcester, including, specifically, the introduction of new services for elderly and handicapped patrons. The vigorous program of new services for elderly and handicapped includes the following:

| Service Name | Date of Implementation |
|---|---|
| Mini-Coach Special | November 1973 |
| Reduced Fare (E&H) | June 1974 |
| Elder's Shoppers Special | September 1974 |
| Smith Special | September 1975 |
| Route Changes | 1975 - 1976 |

The Mini-Coach Special is a downtown mini-bus route to increase the mobility of inner-city elderly persons. Operating 6 days a week on approximately 1-hour headways, the 17-passenger mini-bus provides door-to-door service for elderly persons to various shopping areas in the CBD for 10¢ a ride. On-board surveys, which have been used to monitor the success of the program, have indicated a continual increase in ridership and show that the service is also being used for medical, banking, and employment trips.

Fare was reduced to 20¢ for all elderly and handicapped persons in order to encourage increased ridership and reduce the cost of their travel.

The Elder's Shoppers Special is a demand-responsive door-to-door service for persons 60 years of age or older. It was implemented in response to the termination of a local commodity food program and a changeover to the food stamp program. Although first funded by Project LINKS, a social service agency, the cost of the service, including the 50¢ fare, is paid for by the city of Worcester. Service is provided by three mini-coaches, which operate one day a week in each of five designated quadrants of the city. Service is highly personalized; a driver will escort patrons on the buses and bring in bundles at the patron's home.

The Smith Special offers trips to and from work on a subscription basis from 6 to 9 in the morning and 3 to 6 in the afternoon. These trips service employment centers within the city of Worcester. During offpeak hours the service is demand-responsive and is utilized for medical and shopping trips. The cost of the subscription bus service during peak hours is $1 each way, while offpeak service fare is 50¢ a trip.

In total, 23 route changes were recommended in the 1973 TDP including 16 modifications, 4 new routes, and 3 deletions. Although they have planned to benefit all users of regularly scheduled fixed route service, the major beneficiaries have been the elderly and handicapped because of their concentration within the city limits. Most of the 16 modifications have been implemented and routes better serve apartment complexes, elderly housing projects, community shopping centers, and have reduced walk times. Of the four recommended new routes, one route has been added, a cross-town route, another is being considered, and no action has been taken on the remaining two. All suggested route deletions have been cancelled since the suburban communities where they were located have since joined the WRTA.

Although CMRPC staff have considered the feasibility of fringe parking and intermodal transportation center sites, they question the applicability of such a system. Worcester

does not have a serious CBD parking problem and mode change significantly increases travel times. The one existing park-and-ride lot, located in Route 9 outside of Worcester is rarely, if ever, utilized. The attempt by the state to initiate a region-wide carpooling program has been met with apathy by the area's major employers, thus confirming the limited demand for shared-ride alternatives. Planners believe such programs will only be possible in the event of another energy crisis or similar negative inducements.

The Transit Improvement Program (TIP) prepared this fiscal year included service innovations such as pre-paid passes (desirable since WBC's exact 40¢ fare requires the use of 3 separate coins) and a free-fare zone in the CBD. The TIP also recommended the initiation of a marketing program which will, for the first time, attempt to attract other than transit dependent persons for WBC's regularly scheduled service.

Institutional Climate

Two patterns merge to provide the institutional history, arrangements, and climate in the Worcester planning region. There is a relatively clear agency structure with a high degree of localism, cooperation, and conjoint planning and implementation. This is facilitated or fostered by an arrangement whereby the regional planning agency (CMRPC) does all the short-range, long-range, and operational planning for the operator through the RTA.

The institutional arrangement, however, has been shaped by a strong state role which has, through a consortium MPO structure, linked planning and implementing agencies under one policy-making apparatus. Worcester and other towns criticize state influence on local planning.

The institutional environment is relatively unstable. The bus company remains a private operation but expects to go out of business in the next few years.

The existence of a single lead agency (CMRPC) that represents the area's only planning staff has reduced conflict. As a lead agency, the CMRPC acts in a daily planning capacity; it institutes all routes, schedules, and service changes, and even assists in the administrative aspects, such as the preparation of Section 3 and 5 grant applications. This tight interfacing is also noticeable in that CMRPC attends all of the WRTA meetings, coordinates the operations of the TPAG, the citizen group, and responds to transit issues for the city council and WRTA. This arrangement has resulted in much plan implementation.

There has been uncertainty about the institutional planning apparatus. This uncertainty centers about the state role in planning and, subsequently, the designation of the MPO by the Governor in 1975. Prior to 1975 there was no official MPO for "Until 1975, UMTA thought that the CMRPC was the MPO." When the new federal regulations published on January 13, 1975, stipulated that the MPO be designated by the Governor, the state exercised dominant role in planning. The Governor, acting on the advice of the EOTC and DPW, designated four agencies to act as the MPO for the Worcester area.

The state intended to link planning and implementing agencies into one organization. The regional planning agency, CMRPC, would remain as the lead agency on the local level and citizen advisory groups would be set up to provide significant input into priorities for the planning process. This arrangement was heavily influenced by the earlier Boston Transportation Planning Review.

A more direct but perhaps not an immediate problem in Worcester continues to be the unique arrangement whereby the principal urban carrier remains in private ownership and earns a profit while the subsidy of the transit system rises. Because of this private ownership, Worcester is in the situation whereby needed capital acquisitions and federal operating assistance have not been received. The dominant issue is the liability of the WRTA under UMTA's 13-C labor protection clause, which stipulates that workers rights must not be subverted by capital grants to the point of displacement or dismissal. Because a large part of WBC's operation involves competitive school bus service, loss of the contract at a future date would mean the need to lay off 80 workers. In this situation, the WRTA would be responsible for settlement damages to these workers, and a settlement would run into the millions. Until this issue is solved, WRTA has been borrowing money for operating assistance, and is operating under the assumption that UMTA will assist them financially when the situation is satisfactorily resolved.

Private ownership has also precluded the immediate possibility of upgrading WBC's garage and maintenance facilities. The present storage capacity of the garage is inadequate. There are no new plans for garage construction or renovation until the parcel of land on which the present facility is located is acquired by the Regional Transit Authority. This is due to the unwillingness by UMTA to invest in a permanent facility on land held in private ownership. Delay in building a new garage insures WRTA and UMTA that later acquisition of the property would mean a purchase price at its "fair market value."

## Conclusions

In the past, Worcester has paid minor attention to transit planning and improvements. It initiated comprehensive transit planning in 1973 in response to a crisis that threatened to end mass transit. Transit continues to operate, planning has become more systematic and basic service levels, at least for the transit dependent, have grown. The transit system still has problems due to old capital equipment, a poor level of suburban service, declining ridership, and the existence of a privately owned bus system that may fail within 5 years.

Current transit successes have been achieved because of an institutional arrangement whereby the regional planning agency acts as a staff for the WRTA, private operator, and is also concerned with regional policy issues. As the single lead agency on the local level, planning is mutually cooperative and is highly local. These two factors account for the high rate of implementation of the transit service improvements, route modifications, and an almost one-to-one correspondence between short-range planning and implementation.

On a broader level the highly successful relationship between planning and implementation may be traced to Worcester's unique MPO designation, which combines planning and implementing agencies. The framework of this arrangement duplicates the former "3-C" arrangement first initiated in Worcester in 1972. Although the local regional planning agency is concerned about home rule, it appears that the state will not exercise undue control over planning to the detriment of the local community. The state agencies seem to be seriously committed toward an open and participatory approach to planning.

Despite the framework of a good planning process, Worcester has problems because of the continued operation of a private operator while the deficit for transit operations rises. The unique contract between the WRTA and the private operator, however, served the intended purpose of buying more time for the community to take over the transit service. With proper planning, a natural transformation of the private system into public ownership will take place in the next few years.

See the summary matrix, Table 46.

TABLE 45. WORCESTER - TECHNICAL STUDY GRANTS

| GRANT NO. | RECIPIENT | AMOUNT | DATE |
|---|---|---|---|
| MA-09-0015 | CMRPC | $130,000 | 1973 |
| MA-09-0020 | CMRPC | 93,125 | 1974 |

# TABLE 46. WORCESTER - SUMMARY, IMPACT OF TECHNICAL STUDIES PLANNING

Region I

| Grants | # | Amount | Date 1st Received |
|---|---|---|---|
| Technical, Section 9 | 2 | 223K | 1973 |
| Capital, Section 3 | 1 | 1.2M | 1974 |

| Effectiveness Areas | Planned | Implemented | Staged (#Years) | Planners | | | Comments |
|---|---|---|---|---|---|---|---|
| | | | | MPO | Consultants | Operators | |
| **Professional Capability** | | | | | | | |
| Short Range | x | x | 5 | x | x | | Partial Implementation only because of 13-C labor clause. |
| Operational | x | x | | x | | | Extensive; done hy MPO as agent for RTA. |
| Long Range | x | | | x | | | Minimal Activity; Long Range update 2-3 years away. |
| Modelling | | | | x | | | Preliminary activity for future model development. |
| **Capital Acquisition** | | | | | | | |
| Vehicle Fleet | x | | | x | | | 34 buses acquired prior to Section 9 Grant. |
| Garage/Maintenance | | | | | | | Not planned due to private ownership issue. |
| Operational/Other | x | | 5 | x | | | Two-way radios and intercom system. |
| Park and Ride | x | | | x | | | Planning studies indicated a lack of demand. |
| **Service Improvements** | | | | | | | |
| Special Services | x | | | x | | | Downtown Mini-Bus route for elderly; |
| Handicapped & Elderly | x | x | | x | | | Elder's Shopper Bus; Mini-Bus Route and 'Food Service Bus'. |
| Demand Responsive | x | x | | x | | | Elderly and Handicapped service only. |
| Management | x | | | x | | | Money for UMTA and DPW courses on a continuing basis. |
| Marketing | x | | | x | x | | The area's first comprehensive study; scheduled FY 76. |
| Other | x | | | | | | Grab Bars for boarding and alighting; not received to date |
| Route Coverage | x | x | 5 | x | | | Numerous route modifications mostly within center city. |
| Route Scheduling | | | | | | | |

# 6. SUMMARY MATRICES

## 6.1 MATRICES

Two summary matrices are included to present the comparable Technical Studies Planning experience of the 20 case study sites. (See Tables 47 and 48.) The glossary (Section 6.2) presents definitions of the categories used in the matrices.

# TABLE 47. SUMMARY - INVENTORY OF IMPACTED AREAS OF TRANSIT PLANNING BY TECHNICAL STUDY GRANTS

| CITIES \ EFFECTIVENESS AREAS | PROFESSIONAL CAPABILITY | | | | CAPITAL ACQUISITION | | | | SERVICE IMPROVEMENTS | | | | | | | | (% CHANGE) SERVICE CHARACTERISTICS | | | | PLANNING GRANTS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SHORT RANGE | OPERATIONAL | LONG RANGE | MODELLING | VEHICLE FLEET | GARAGE/MAINT. | PARK AND RIDE | OPERATIONAL/OTHER | SPECIAL SERVICES (HANDICAPPED & OTHER) | DEMAND RESPONSIVE | MANAGEMENT | MARKETING | OTHER | ROUTE STRUCTURE: COVERAGE | ROUTE STRUCTURE: SCHEDULING | RIDERSHIP | VEHICLE MILES | FLEET | FARE LEVEL | # OF GRANTS | AMOUNT | 1ST GRANT |
| ALBUQUERQUE | X | X | X | X | X | X | X | X | X | | | X | X | X | X | 0 | 1 | 76 | 0 | 3 | 180 | 1974 |
| BILLINGS | X | X | X | | X | | | | | | | X | | X | X | N.A. | N.A. | N.A. | N.A | 1 | 18 | 1975 |
| BIRMINGHAM | X | X | X | | X | X | | | | | | X | X | | | 0 | -9 | 20 | 14 | 1 | 457 | 1970 |
| CEDAR RAPIOS | X | X | | | X | X | | | | | X | X | | | | 30 | 5 | 0 | 0 | 2 | 68 | 1974 |
| CHARLOTTESVILLE | X | | X | | X | X | X | | | X | | X | X | | X | X | -38 | -13 | 9 | 0 | 1 | 45 | 1973 |
| CLEVELAND | X | | X | | X | X | | X | X | X | | X | X | | X | X | 30 | 20 | 0 | -(1) | 3 | 143 | 1972 |
| COLORADO SPRINGS | X | X | X | X | X | X | | X | X | X | | | X | X | X | X | 112 | 158 | 48 | 0 | 3 | 211 | 1972 |
| DALLAS | X | X | X | X | X | X | X | X(3) | X | X | | X | X | X | X | X(3) | -20(9)(2) | 9(-12) | 13 | 0 | 5 | 4,200 | 1970 |
| ERIE | X | | | | X | X | | X | X | X | | | X | | X | X | -49 | 35 | 38 | 20 | 4 | 103 | 1969 |
| FLAGSTAFF | X | | | | | | | | | | | | | | | | | | | | 1 | 20 | 1975 |
| HATTIESBURG | X | | | | X | X | | | | | | | | | | | -40 | -40 | 0 | 33 | 1 | 38 | 1971 |
| LITTLE ROCK | X | X | X | X | X | X | X | X | X | X | | X | X | | X | X | -15 | -22 | 0(4) | 40 | 4 | 217 | 1970 |
| MANCHESTER | X | X | | | X | X | | X | X | X | | X | X | | X | X | 20 | 3 | -36 | -17 | 2 | 101 | 1972 |
| OMAHA | X | X | X | X | X | X | X | X | X | X | X | | X | | X | X | 17 | 27 | 0(4) | -14 | 5 | 387 | 1969 |
| PROVIDENCE | X | | X | X | X | X | | X | X | X | | X | X | | X | X | 10 | 10 | 11 | -(5) | 5 | 341 | 1972 |
| SALT LAKE CITY | X | X | X | | X | X | X | X | X | X | | | X | | X | X | 129 | 55 | 248 | -50 | 4 | 754 | 1972 |
| SAN DIEGO | X | X | X | X | X | X | X | X | | X | X | X | X | X | X | X | 60 | 102 | 56 | 16 | 4 | 3,405 | 1969 |
| SEATTLE | X | X | X | X | X | X | X | X | X | X | | X | X | | X | X | 13 | 42 | 0 | 20 | 8 | 2,380 | 1967 |
| SYRACUSE | X | X | | | X | X | X | X | X | X | X | X | X | | X | X | 11 | 3 | -9 | 0 | 3 | 707 | 1971 |
| WORCESTER | X | X | X | X | X | | | | | X | X | | | | X | X | -12 | -5 | -3 | 14 | 2 | 223 | 1973 |

(1) For bus transit, a 50% fare decrease occurred while rapid rail fares decreased 36%.
(2) Values in parentheses represent Fort Worth changes.
(3) Capital acquisitions and service improvements represented pertain to both Dallas and Fort Worth.
(4) Fleet has been replaced without net change in fleet size.
(5) Zonal fares instituted for all systems operated by Rhode Island Public Transportation Authority generally resulting in lower fares.

N.A. - Billings received initial technical study grant, December 1975.

## TABLE 48. INSTITUTIONAL CHARACTERISTICS AND ISSUES

| | CHARACTERISTICS | | | | ISSUES: OPERATIONAL | | | ISSUES: JURISDICTIONAL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cities | MPO | RTA | MPO Planning | MPO Decision Making | A | B | C | Citizen Part. | Geog. Area | Proper MPO | Fair Share | State's Role |
| ALBUQUERQUE | HUD/COG/ A-95/ Inter-agency | No | L,S,SR | Shared | No | No | No | No | No | No | No | No |
| BILLINGS | HUD/A-95 | No | L,S,O | Shared | No | No | No | No | No | No | No | No |
| BIRMINGHAM | HUD/A-95 | Yes | L,S,SR | Shared | Yes | No | No | Yes | No | No | No | No |
| CEDAR RAPIDS | HUD/A-95 | Yes | S | Shared | No | No | No | No | Yes | No | No | No |
| CHARLOTTESVILLE | Inter-agency | No | L,S | NA(1) | No | No | No | No | Yes | Yes | NA | No |
| CLEVELAND | HUD/A-95 | Yes | L,S | Shared | No | No | No | No | No | No | NA | No |
| COLORADO SPRINGS | HUD/A-95 | No | L | Lead(2) | No | No | No | No | Yes | Yes | Yes | No |
| DALLAS | HUD/COG/ A-95 | No | L,S,O,SR | Shared | No | No | No | No | No | No | No | No |
| ERIE | Inter-agency | Yes | C | Lead(3) | No | No | No | Yes | No | No | No | No |
| FLAGSTAFF | HUD/COG/ A-95 | No | L,SR | Lead | No | No | No | Yes | No | No | No | Yes |
| HATTIESBURG | Inter-agency | No | S | NA(1) | NA | No | NA | Yes | Yes | Yes | NA | No |
| LITTLE ROCK | HUD/COG/ A-95/RTA | Yes | L,S,O,SR | Absolute | No | No | No | Yes | No | No | No | Yes |
| MANCHESTER | HUD/A-95 | No | S,O,SR | Shared | No | No | No | No | Yes | No | No | No |
| OMAHA | HUD/COG A-95 | Yes | L | Shared | Yes | No | Yes | Yes | No | No | Yes | No |
| PROVIDENCE | IGA | Yes | L,SR,S | Disjoint | No | No | No | Yes | No | No | NA | Yes |
| SALT LAKE CITY | HUD/95 | Yes | L,S,O | Shared | No | No | No | No | No | No | No | Yes |
| SAN DIEGO | HUD/95 | No | S,L | Shared | No | No | No | No | Yes | Yes | Yes | Yes |
| SEATTLE | HUD/COG/ A-95/IGA | Yes | L | Disjoint | No | No | Yes | Yes | Yes | Yes | Yes | No |
| SYRACUSE | Inter-agency | Yes | S,SR,O | Disjoint | Yes | Yes | Yes | Yes | Yes | Yes | No | No |
| WORCESTER | Inter-agency | Yes | L,S,O,SR | Lead | No | No | No | No | No | Yes | No | Yes |

(1) Not available because no MPO; city responsibility
(2) City takes lead
(3) RTA takes lead.

KEY:
L = Long Range
S = Short Range
O = Operational
SR = Sub Regional
C = Coordinates planning efforts

A = Operational vs. Policy Planning
B = Public vs. Private Operators
C = "Pass Through" Funds

## 6.2 GLOSSARY FOR MATRICES

To facilitate understanding of the matrices and their headings and entries, the following glossary is provided for each of the three matrices, to explain terminology and procedures used to complete them.

### 6.2.1 Case Study Matrix

This format utilizes x's to indicate activity under the designated heading. It should be noted that the left-hand column headings correspond with the effectiveness section of the case study text. These headings represent the following effectiveness areas:

Development of professional planning capabilities,

New capital acquisitions,

New or improved services with existing facilities.

To clarify the left-hand column headings, it should be recognized that modeling and long-range planning differ in that, if the long-range plan were principally based on modeling, it would be indicated as the latter. Modeling is also inclusive of mode split, population, and employment forecasting models.

The following guidelines should be recognized in interpreting this matrix:

Dollar volume of both the Technical Studies Grants and the Capital Assistance Grants represent the total amount expended, including local shares.

Material has been placed in this matrix to create mutually exclusive entries. Therefore, to understand the total range of planned efforts in a site, examine all x's under the column "Planned."

The column heading "Planned" reflects that a particular type of planning has taken place which was sponsored by the Technical Studies Program.

Short-range typically means a 5-year time horizon if the site has not indicated their operational definition of "short-range planning."

Many planning activities funded by Technical Studies Grants occur as part of an annual updating function and, consequently, are never "completed," in the strict

sense of the word. These activities are listed under the column heading "Planned" and are also reflected under the column heading "Staged."

A typical example of this situation occurs with fleet replacement, where, although receipt of a Capital Assistance Grant may indicate completion, the site probably will have a staged program for future fleet acquisition.

Another example is the annual population, employment, land use, or transit survey updates.

It should be noted that sometimes planning activities are simply planned and are referenced by x's under the column heading "Planned" only.

The column heading "Comments" is included to note idiosyncratic features of the site under discussion.

### 6.2.2 Summary Matrix - Inventory of Impacted Areas of Transit Planning by Technical Studies Grants

The first three column headings used in this matrix parallel three of the four effectiveness areas discussed in the case study format. Two additional column headings are included to allow simultaneous evaluation of the magnitude of the site's participation in the Technical Studies Program, as well as determination of the magnitude of the changes in the transit service provided to that particular area. It should be noted that the column heading "Service Characteristics" is discussed in terms of percentage changes over the duration since the receipt of the initial Technical Studies Grants.

In the column headed "Planning Grants," number of grants refers to the total number of Technical Studies Grants received by a site excluding amendments. Additionally, the heading "Amount" indicates dollar volume of the Technical Studies Grants' Federal and local shares. Generally, an "x" is used to indicate existence of a particular type of planning or activity in the designated area. The 20 case study sites used in this report are presented alphabetically in the left-hand column of the matrix.

The following represent the criteria and operational decisions used in completing this matrix:

The heading "Operational Planning" includes planning, computerized maintenance systems, schedule improvement schemes, SIMS, transit usage surveys, on-board surveys,

schedule checks, and route modifications. Operational planning is typically conducted and applied to the transit service on a day-to-day basis. Operational planning differs from short-range planning in that the latter is policy-level, generates guidelines, and is generally nongeographically-specific and non-programmatic.

The heading "Capital Acquisitions" receives an "x" if funds were spent, received, or applied for.

The heading "Operational/Other" is meant to include such capital acquisitions as bus shelters, registering fare boxes, signs, and supervisory vehicles.

The heading "Other" under the major heading "Service Improvements" includes improvements such as transit police and safety improvements.

The heading "Special Services" includes improvements affecting service to youths, charter service, or downtown circulator systems.

The heading "Management" includes improvements such as offering courses to employees to improve their professional understanding, introduction of information systems, and maintenance procedures.

Under the column heading "Route Structure" an "x" under either "Coverage" or "Scheduling" reflects improvements in terms of better service. Scheduling includes the net effect of changes in hours and headways.

"Vehicle Miles" are typically annual figures.

"Fleet" includes all carriers providing regularly scheduled service.

If "Fare Level" varied both up and down during the time interval since the receipt of the initial Technical Studies Grant, this is indicated by means of a footnote.

### 6.2.3 Summary Matrix - Institutional Characteristics and Issues

This summary matrix is based on the case study effectiveness area examining institutional climate. The matrix therefore compares the institutional climates responsible for planning and transit operation in the 20 sites. It also portrays the type of MPO authority characteristic of each site. The remaining two major column

headings, "Operational Issues" and "Jurisdictional Issues," compare the sites' characteristics in terms of issues generated by review of typical urbanized area experiences.

The following definitions and clarifications are necessary to interpret this matrix:

Under the heading "MPO", which refers to a Metropolitan Planning Organization, the responses may be one of the following:

A-95, HUD-701 (Comprehensive Planning Agency), COG (Council of Governments), Inter-Agency also includes ad hoc arrangements, and IGA.

The heading "RTA," which refers to Retional Transit Authority, indicates the existence of an RTA by use of "yes" or "no."

Typically, an RTA provides multi-jurisdictional transit coverage.

Under the heading, "Type of Planning," responses reflect the type and mix of planning conducted, such as long-range, short-range, operational, or sub-regional.

Under the heading "Decision-Making," responses indicate the MPO's decision-making authority with respect to actual implementation of transportation plans. Responses in this column are a result of the inferences from material gathered about the site. Shared decision-making occurs through a consensus procedure or because of a review procedure. Taking the lead in decision-making indicates that one agency regularly defers to another, or has veto power. Disjoint decision-making occurs when there is no obligation or understanding on the part of either the transit operator or the MPO to defer to the other's recommendations for implementation. For example, an RTA may implement routes without the concurrence of the MPO on a regular basis or totally ignore many of the MPO's suggestions for service.

The heading "Operational Issues" addresses concern toward the role of the public and private transit operators in the area with regard to coordination between them and also to the degree of coordination or cooperation between the operators and the MPO. Therefore, the following operational issues are raised:

a. Is there disagreement as to whether the MPO should be doing operational planning for the transit operators?

This is referred to as "operational vs. policy planning." The response is a "yes" or "no." This entry reflects the fact that many operators feel that their MPO's planning staff should be used to augment their operational or day-to-day planning activities, such as route analysis, or more detailed sub-regional planning. MPO's, however, feel their task is policy planning. This disjuncture may cause some conflict between the operator and the MPO, especially when decisions are made as to which projects should be included in the UWP.

b. Is there cooperation between public and private operators?

A lack of coordination between public and private operators is indicated by an absence of interline transfers or the existence of competing route structures. This issue is referred to as "public vs. private operators," and is responded to by a "yes" or "no." A "yes" response reflects adverse competition between operators in the urbanized area.

c. Does the MPO include the operator in the planning process by giving him "pass-through funds" for short-range planning?

This is referred to as "pass-through funds" issue and is responded to by a "yes" or "no." A "no" response conveys unwillingness on the part of the local MPO to pass through planning funds to the operator to assist short-range planning. A popular trend is to have the operator receive most of the short-range planning funds, with the MPO concentrating on long-range planning efforts. If the latter is the case, the response given is a "yes."

The major heading, "Jurisdictional Issues," reflects an institutional problem based on disagreement over agency roles, funding, or citizen participation. Specific issue areas are identified and include:

a. Citizen participation - What is the proper role of citizens in the planning process? "Yes" response in this column indicates that the MPO's citizen participation mechanisms are informational rather than participatory, or a complete lack of citizen involvement due to exclusion by the MPO, or expressed fear by the MPO that citizen participation should be minimal, to reduce delay

in the planning process, or a feeling by the MPO that their policy committee structure is adequate citizen input, or any or all of the above.

It should be noted, however, that extensive efforts by the MPO to induce citizen participation which are ineffective rate a "no" response.

b. Geographic area - What is the proper size of the planning area? At a minimum, the planning area should encompass the urbanized area and may cover a larger area at the discretion of local governments. There may be a conflict, however, when the MPO's jurisdiction includes more than one urbanized area or transcends political boundaries, such as counties. Frequently, there may be pressure on the MPO to extend the planning jurisdiction area to cover more "urbanizing areas" because of the limited availability of rural planning funds.

c. Proper MPO - Which agency is the proper agency to become the MPO? The governor of each state has the authority to designate the MPO for each urbanized areas. Since the MPO can control what projects are included and are thus funded in the UWP, and since they often distribute local transportation funds, it is important that all operators and agencies agree on the proper MPO. If there is conflict here, it is most typically caused when the MPO is not the same as the A-95 agency. When the two agencies are not the same, there is often a more critical or negative review of the MPO's UWP, environmental impact statements, etc. This results in funding delays and implementation delays.

d. Fair-Share - Is there fair-share planning so that planning benefits sub-areas? Disagreement may occur within designated planning areas by jurisdictions which, despite paying their equal shares of local funds for transportation planning, do not receive their fair share of benefits. As a result, there may be major opposition to plans by communities scheduled to receive little if any of the recommended improvements. These localities may argue against transportation plan adoption on the basis that they did not receive their fair share of improvements, despite their providing a fair share of funds. This situation may cause the MPO to over/plan for the area so as to equally distribute benefits and thereby minimize opposition to plans.

e. State's Role - What is the role of the state in the planning process? There may be concern that the MPO's authority may sometimes impinge on state and local authority. There are other situations in which the state imposes regulations on the MPO rather in conflict with the Federal regulations. A "yes" in this column reflects a lack of coordination between state and UMTA guidelines.

# APPENDIX

## CHECKLIST FOR LOCAL INTERVIEWS

PLAN PREPARATION

I. Origin of the Planning Process

A. Making contacts

1. Chief Administrative Officer
2. Transportation planner or consultant
3. Transportation Authority Chairman
4. Communication media
5. Representative of regional planning agency
6. Others

B. How did transportation planning get started in the community? (recognize each grant separately and specify cumulative interrelationship)

1. Local awareness of need, prior role of private bus companies
2. Availability of subsidies to assist local bus companies
3. Promotion by consultant
4. To meet UMTA Capital Assistance certification requirements
5. New unforeseen industrial expansion, suburban expansion
6. May become part of metropolitan area
7. Meeting a crisis caused by catastrophe, financial situation, or other level of government
   a. Highways
   b. Defense establishment
   c. Reservoirs
   d. Universities
   e. Objections to highway construction
8. Part of metro area and must plan to integrate services

II. Design of Study Program and its Relationship to Urban Area Conditions and Problems

A. Physical Description of Urban Area

1. Within SMSA

a. Central City

b. fringe area

c. suburb

i. residential

ii. commercial

iii. industrial

2. Outside SMSA

a. Will become urbanized

b. Resort town

c. Agriculture center--prosperous or declining

d. Industrial centerr--prosperous or declining

3. Conditions of transportation facilities

a. Age of public/private transportation facilities

b. Condition of public/private transportation facilities

B. Economic Climate

1. Main employment generators

a. Industrial

b. Commercial

c. Agriculture

d. Tourism

e. Government

2. Rate of growth

3. Expansion possibilities

C. Social Characteristics

1. Population

2. Income

3. Education

4. Age

5. Auto availability, transit modal split

6. Transportation facilities, including taxis

D. Relationship of Study Design to Identified Problems

1. What are the sources of transportation planning goals, objectives and standards?

2. Was subject matter and scope of plan appropriate for the size and function of the urban area or service area?

III. Regional and/or Planning Board Review of Application and Program (develop this information for each grant and identify the cumulative sequence)

A. What other regional planning boards were involved in the design and approval outcome of the grant and in what ways?

B. What changes did the other reviews suggest or require?

1. Consultants

2. Scope of services

3. Time duration

4. How long did it take to get these approvals? Was this reasonable?

IV. Regional and Federal Administrative Review of Application and Program (specify for each grant received)

A. How long did it take to get the regional office approval? Was this reasonable?

B. What changes took place in the city administration and in the transportation facilities during the

approval of the application?

C. To what extent was the transportation situation altered during the review period?

D. Did the regional office make recommendations before and while the actual planning was underway? What effects did this have in the community?

E. Were the regional recommendations constructive?

V. Professional Responsibility for Plan Preparation (Identify for each grant and indicate the shifts over time)

A. Who was responsible for the actual planning work?

1. Local staff

2. Consultant

3. State staff

4. Other or combination

B. How was the professional planning group picked?

1. By the community (specify who)

2. Suggested or imposed by the state

3. By the transportation authority

C. What were the qualifications of the professional planning group?

1. Previous experience

2. Professional staff

D. How much time was spent in the community by the professional transportation planners? Was there a resident planner?

VI. Formulation, Participation, and Adoption of the Plan (Explain this process for each grant received and indicate if there were cumulative effects)

A. Were regular meetings held with community interest groups and neighborhood groups during the transportation planning process?

1. In which phases?

2. Were these established civic action groups or other groups not previously active?

3. Were any of the new groups formed with help of city government?

B. Did these discussions have any influence on development of the transportation plans? Did they ultimately aid acceptance of the plan?

C. Were surveys or questionnaires used and how did they influence results?

D. To what extent were local staff and other municipal officials involved in the transportation planning?

E. Were other governmental jurisdictions invited to participate in developing relevant aspects of the transportation plan and its possible implications?

F. How did the planning staff conceive its role?

1. As a staff arm for the executive or council.

2. As a staff arm for the transportation authority.

3. As a lobbyist within local government for the transportation interests as a whole?

4. As a lobbyist for politically inarticulate or transportation disadvantaged groups.

5. Other

G. How were the transportation plans produced and communicated to the public?

1. Are summaries of studies, plans, land-use regulations, etc., available in laymen's language?

2. How are plans publicized?

a. Direct distribution

b. Hearings

c. Radio, television, newspaper

3. How is the public informed of specific decisions affecting their interests--highway location, proposed land acquisitions, etc.

E. Were various segments of the community satisfied with the transportation plans and subsequent implementations?

a. What actions were taken by groups or individuals in opposition to the plan?

VII. Quality of the Planning Documents (Review documentation for each grant and indicate whether each successive one recognizes the previous grant)

A. Research and Analysis

1. How many documents are included in the plan? Is there a summary document if more than one?

2. What type of a Technical Study was produced?

3. Were the techniques appropriate for the level of information and analysis sufficient for immediate decisions, actions and proposals? Is further detail necessary?

4. Were the scope and level of detail of projections appropriate to the size of the transportation planning area--also the level of detail in the proposals?

5. Were projections adequate in terms of subsequent events?

6. Are the data and findings of the various segments of the plan useful for other related studies--for urban planning and land use studies, regional economic development, marketing and so forth?

B. Planning Principles

1. Are goals and objectives discussed--is there an indication that the public participated in this?

2. Are alternative choices considered for a comprehensive transportation plan and the various elements?

3. Is the professional quality of the analysis or data satisfactory?

PLAN EFFECTUATION

VIII. Availability and Quality of Continuing Planning Assistance (Specify in light of any subsequent grants received)

A. Has transportation planning become institutionalized and expanded in scope?

B. Is there a professional staff?

1. Size of staff

2. Backgrounds

3. Salary scales

4. Full-time direction

5. Appointing Authority and responsibility

6. Turnover

C. What are the per capita expenditures for transportation planning?

1. What is the source of the local share of costs?

2. Have appropriations been reliable and expanding?

D. What participation is there in Regional and Metropolitan transportation planning associations and projects?

E. How are consultant services being utilized?

IX. Composition and Attitude of Transportation Commission

A. What is the quantity and quality or personnel?

1. Size of commission

2. Background of numbers

3. Turnover of numbers

4. Location of function within government structure

5. Who is the appointing authority?

6. Was the commission formed prior to the first Technical Study Grant?

7. What are the commission's functions?

8. What are the attitudes of numbers?

9. How informed are they on community problems?

X. Implications of Local Political Climate for Transportation Planning Success (Indicate how this has changed over time)

A. What is the receptiveness of the political leadership to transportation changes?

B. How experienced are salaried officials?

1. What are the day to day relationships between the transportation planning staff and other public officials?

2. Do officials utilize information supplied by the transportation planning staff?

3. Do decision-makers appreciate a more systematic identification of transportation problems, potentials, and objectives?

4. Do they feel transportation planning documents are useful to them in their work?

C. Has public understanding of transportation planning been enlarged?

1. Are transportation planning documents, services and personnel utilized by the public? How?

2. How is the level of community support for transportation planning changing?

3. Is there heightened consciousness of transportation problems and issues?

a. Communication media coverage

b. Citizen listings of issues

4. Has greater interest been generated on transportation issues?

a. Have citizen action groups been forming and expanding their membership?

- Among influential segments of population

- Among formerly inarticulate groups

- Budgets, activity, membership

b. Has the intensity of public concern been increasing?

- How quickly do ad hoc groups form in reaction to specific issues?

- How many people attend hearings, vote on bond issues, etc.?

D. Has the scope and time sense of community decisionmaking been enlarged?

1. Are distinctions made between long and short term transportation plans?

2. Is there sensitivity to trade offs and priorities?

3. To what extent are non-physical, social, environmental, and economic problems considered?

4. How subtly are the relationships among functional programs and among social environmental, physical, and economic influences identified and manipulated?

5. Is their recognition of direct and indirect benefits?

6. Are alternative courses of action suggested and considered?

7. To what extent is uncertainty recognized? How is it handled?

8. Is there awareness of staging and programming considerations?

9. Is the need for continuous transportation planning recognized?

XI. Coordination of Planning With Other Government Units (Indicate how this has changed over time)

A. Has transportation planning been coordinated among different areas of government?

B. Are outside sources of information utilized?

1. From adjacent communities?

2. From metropolitan, county, regional and State transportation planning activities?

C. Are conflicts identified and resolved?

1. To which governmental units or special districts are transportation plans submitted for review?

2. What type of response is received?

D. Are transportation plans and actions consistent with those of other jurisdictions?

E. In what manner do external agencies communicate their ideas to the community?

F. What kind of guidance and services are provided by outside government agencies?

PLANNING IMPACT

The effectiveness of planning is measured in terms of:

I. Is (or was) the transportation plan and the transportation planning process recognized and accepted as professional and as a legitimate policy instrument and therefore a mechanism for guiding and/or coordinating transportation development?

II. Do (or did) individuals or agencies find the segments of the plan, and the planning process, of value in the development of specific facility and plans and implementation?

III. Did the planning process and the plan developed stimulate efforts at improved transportation facilities utilization?

IV. Did the planning process and the actual plan support the development of an institutional climate encouraging comprehensive, coordinated, and continuing transportation planning?

I. Legitimation of Transportation Policy as a Basis for Formulating Transportation Planning

A. Development of Formal Transportation Planning

1. Long Range Planning

a. Does the community have a long range transportation plan? Is one forthcoming?

b. What is the goal of the long range plan? What modes, level of service, alternative systems are included?

c. What is the time horizon for the plan? Is there a staging? Where does the community stand regards plan implementation?

2. Short Range Planning

a. Does the community have a short range plan? Is one forthcoming?

b. What is the goal of the plan? What modes, levels of service, alternative systems are included?

c. In what sequence will the plan be implemented?

d. Has sub-area planning been done?

B. Development of Analytic Techniques for Transportation Planning

1. Demand Models

a. Has a demand estimation model been developed? Is one being developed?

b. Have state-of-the-art or locally created demand estimation techniques been utilized in planning?

C. Coordination of Facilities

1. Intermodal Coordination

a. Does the planning consider all existing intra-community modes?

b. Does the planning consider regional coordination?

c. Did the planning develop a UWP?

2. Facilities Coordination

a. Is the planning effort coordinated with development of regional services?

b. Did the planning produce a OWP?

D. Attention to Special Markets

1. Services Developed for Special Markets

a. Service provided the elderly?

b. Service provided for handicapped?

c. Service provided to other special groups? Specify.

E. Transit Planning Professional and Organizational Features

1. The Role of Expertise

a. Have consultants been used? How have they been used? How long have they been used? Who are they?

2. Continuing Planning Capabilities

a. Does the planning have an updating capacity?

b. Are there continuing planning activities to meet emergency needs?

3. Financial Analysis Capability

a. Does the planning consider fiscal resource analysis?

b. Is financial analysis a component of continuing planning efforts?

II. Facilities Planning and Implementation

A. Stimulation of Major Public Transportation Investments

1. What investments have been made as a result of the plan? What other investments have been made which were unrelated to the plan?

   What was the length of time between plan completion and application for Capital Assistance for a transportation investment.

2. Have the subsequent public transportation investments corresponded to planning recommendations?

   a. Was the route the one recommended?

   b. Does the scale correspond with plan recommendations?

   c. What community segments are principally served by the investment?

   d. Has the investment stimulated other types of development? Has the investment been coordinated with other types of development?

      For example: shopping centers, schools, parks and recreation, housing construction, new roads, etc.

3. Have there been major deviations from the plan? What are they?

4. Why were there major deviations?

   a. Irrelevance of plan to changing community needs.

   b. Political weaknesses of planning functions and planners within local government?

   c. Strength of particularly influential groups or individuals?

B. Financial Aspects of Transportation Investments

1. How has the local share of the investment been generated?

a. What was the community reaction to the local share committment?

2. What is the relationship of actual total project costs to that anticipated during planning?

a. How does implementation time correspond with that anticipated in planning?

C. Other Investments

Has the community invested in any innovative techniques?

Where they the result of planning?

III. Strategies for Facilities Utilization

A. Use of Low Capital Intensive Strategies

1. What low capital intensive strategies were recommended by the plan? How have they been implemented?

2. What multimodel traffic improvement strategies were recommended by the plan, such as Topics? How have they been implemented?

B. Development of Improved Facilities Management

1. Were programs to improve transit management recommended by the plan? Have programs such as MIS been utilized? What kind of MIS programs have been utilized?

2. Was improved data management recommended in the plan? Have transit software procedures been adopted or improved?

C. Development of Improved Transit Management Practices

1. What contributions have consultants made to management issues?

2. What changes have occurred in labor policies?

D. Development of an Improved Transit Marketing Capability

1. What marketing efforts are made? What marketing procedures were recommended by the planning?

2. Has there been any noticeable impact of the marketing effort?

IV. Institutional Climate

A. Relationship of Planning to Agency Coordination

1. Has the planning effort contributed to increased coordination of agencies within the urban area, within the region? Has it contributed to increased coordination among different levels of government?

a. Has there been increased communication between the various elements of the urban area?

b. Has there been an increase in the receptivity to new ideas and the rate of innovation?

2. Has planning contributed to the coordination of actions within the operating transit agencies?

a. Are line agency proposals reviewed by the planning staff? At what stage in their formulation?

b. Are interdepartmental conflicts identified and resolved?

c. Are agency actions consistent with overall development policy?

d. How do the agency planners feel about their relationships to key decision-makers?

3. Has transit planning contributed to the coordination of public and private actions?

a. Has transit planning promoted consensus on important development issues?

b. Has it provided a framework for private development decisions?

4. Did the planning and subsequent implementation foster increased citizen interest in transportation issues?

   a. What mechanisms to promote citizen interest were effective? What results did they have?

   b. Is citizen interest distributed similarly throughout the urban area? Are there pockets of discontent? Why?

5. Has the planning and implementation addressed social and environmental concerns?

   a. What is the relationship of the planning and implementation to the local Clean Air Strategy?

   b. What environmental benefits of any implementation have been recognized?

   c. Can improvement in social and economic conditions be attributed to transit planning? Has racial integration been affected? Are educational programs affected?

6. What indirect effects has the presence of planning had?

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